United States Environmental Protection Agency Region III
Corrective Action Program

FINAL

ENVIRONMENTAL INDICATOR INSPECTION REPORT

Venezia
(Formerly Quality Carriers, Inc. and
Chemical Leaman Tank Lines, Inc.)
3987 Easton-Nazareth Road/Route 248
Nazareth, Pennsylvania 18064
EPA ID # PAD 99427908

Prepared for
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DISCLAIMER

This Environmental Indicator Inspection Report for Venezia, formerly Quality Carriers, Inc. and Chemical Leaman Tank Lines, Inc. is not to be used as the basis for final design, construction or remedial action, or as a basis for major capital decisions. Background/historical information and other data, which URS has used in preparing this report, have been furnished by the United States Environmental Protection Agency, Pennsylvania Department of Environmental Protection, and/or third parties. URS has relied on this information as furnished, and is neither responsible for, nor has confirmed, the accuracy of all of the historical information. This report is based on data, site conditions, and other information collected from February through September 2007, and the conclusions and recommendations herein are therefore applicable to that time frame.

1.0 INTRODUCTION

The United States Environmental Protection Agency's (USEPA's) Waste and Chemicals Management Division, Office of Resource Conservation and Recovery Act (RCRA) Programs previously used the voluntary corrective action program for hazardous waste management facilities under USEPA Permits/Orders. This program was recently expanded to address low and medium priority facilities in Region III, which includes facilities that may not be under USEPA or Pennsylvania Department of Environmental Protection (PADEP) Permits/Orders. Voluntary corrective action program objectives are similar to corrective action program objectives for facilities under USEPA/PADEP Permits/Orders.

URS Corporation (URS) was contracted by PADEP to gather relevant information in order to determine whether human exposures to Site-specific wastes and/or groundwater releases have been controlled through interim measures or through State-ordered final remedies for several unaddressed medium/low priority facilities in Region III, including the Venezia facility ('facility' or 'Site'). The Venezia facility (formerly Quality Carriers, Inc. or Chemical Leaman Tank Lines, Inc.) is located at 3987 East-Nazareth Road/Route 248 approximately one mile west of Route 332 in Nazareth, Northampton County, Pennsylvania.

For this scope of work (SOW), URS assembled pertinent information to aid the USEPA and PADEP in evaluating the nature and extent of releases of hazardous wastes, evaluate facility characteristics, and comment on the selected corrective action measure or measures to be employed at the facility to protect human health and the environment.

1.1 Scope of Work

1.1.1 Regulatory Agency File Reviews

URS conducted an extensive records search at PADEP North Eastern Regional Office (NERO). In addition, records acquired from the USEPA Region III Philadelphia Office via PADEP were reviewed. Pertinent documents were photocopied and have been retained in URS' files; but, at PADEP's request, have not been included in this report. A list of documents reviewed is presented in **Appendix A** and references to these documents are noted (via superscript text) throughout this report. A summary of the information obtained from these documents is presented in Sections 2.2 through 2.5.

1.1.2 Site Visit

A Site visit was conducted on June 12, 2007 at the Venezia facility. Participants of the meeting included representatives from PADEP, Venezia, Cardinal Environmental (Venezia's environmental consultant) and URS. The participants are listed in **Table 1**. URS and PADEP presented the facility with information regarding the USEPA Region III Corrective Action process, the Environmental Indicator (EI) Assessment Program, and the legislation driving this program. URS provided the facility with a synopsis of the information collected from the regulatory agencies. Facility representatives provided PADEP and URS with a tour of the facility focusing on the areas of concern (AOCs) and solid waste management units (SWMUs) identified during agency file reviews. Photographs were taken with permission of facility representatives and are provided in **Appendix B**. The Site visit concluded with a discussion of outstanding issues identified during the file review process and the Site visit. A summary of the RCRA AOCs/SWMUs observed during the Site visit is presented in Section 3.0.

During the Site visit it was indicated that there is additional Site information related to the real estate transfer that occurred in December 2006 between Quality Carriers and Venezia which is not contained in the EPA/PADEP files. This information would help fill an information gap in the public record between March 2002 and August 2007. Despite attempts by URS to obtain this information, this documentation has not been received.

2.0 SITE SETTING AND HISTORY

2.1 Site Setting

The facility is situated on approximately 10 acres of land located in Lower Nazareth Township, Northampton County, Pennsylvania[40]. The Site can be located on the United States Geological Survey (USGS) Nazareth, Pennsylvania 7.5-minute Topographic Quadrangle at 75º 18' 36" west longitude and 40º 43' 58" north latitude (**Figure 1**). Land use in the surrounding area is mainly agricultural and industrial as indicated by the 2005 aerial photograph presented as **Figure 2**. Lower Nazareth Township has a population of 5,259 residents (Source: United States Census Bureau, 2000). The Borough of Nazareth is located to the north and northwest of the Site and has a population of 6,023 residents (Source: United States Census Bureau, 2000). Route 248 is located immediately north of the Site beyond which is land owned by the Coplay Cement Company, a large quarry and concrete operation. Coplay Cement Company also owns the land east and south of the Site (Source: Northampton County Public Access website). To the southwest is land owned by Willard and Grace Setzer and land to the west is owned by Chestnut Avenue Associates. At the time of the Site visit, the land surrounding the Site was planted in corn.

Access to the Venezia facility is via Route 248. There are two buildings located on Site as indicated in the Site map presented in **Figure 3**. The building occupied by Venezia is located in the back of the property approximately a quarter mile from Route 248. It is used as a maintenance facility and refueling location for Venezia's fleet. Another larger building, which is identified as the Terminal on **Figure 3** and throughout this report, is located close to Route 248 and is currently unoccupied. Venezia is planning to paint and renovate the Terminal for rental. The operating facility is surrounded on the west and south sides by a tree line. The east and north boundaries are open to a corn field and Route 248, respectively. Access to the operating facility is not restricted.

2.2 Site Background

Venezia purchased the Quality Carriers, Inc. (Quality Carriers) Nazareth facility on December 28, 2006. Venezia is a hauler of cement and concrete dust and operates as a transporter of this non-hazardous commodity. The property is used as a maintenance facility for Venezia's solid tanker fleet. Some box trailers are stored on Site. Prior to purchasing the property, Venezia rented the maintenance building from Chemical Leaman, (later known as Quality Carriers) since the mid 1990s.

The previous owner, Quality Carriers (a subsidiary of Quality Distribution, Inc. of Tampa, FL [94]) occupied the Site from 1999 until December 2006. Quality Carriers acquired the Site via the purchase of Chemical Leaman Tank Lines, Inc. (CLTL) in 1999. CLTL operated the Lower Nazareth Terminal from approximately 1960 to 1999[40].

Venezia's Nazareth shop is identified in USEPA Envirofacts database under the previous owner's name of Quality Carriers. In the USEPA Envirofacts database, the Quality Carriers Site is listed as a Small Quantity Generator (SQG) subject to treatment/storage/disposal (TSD) classification under USEPA identification PAD099427908. The North American Industrial Classification System (NAICS) description is General Freight Trucking. The Environmental Interests portion of the Facility Registration System (FRS) was last updated on February 7, 1984.

Review of permitting documents submitted by owners of the facility since 1984 indicate the following changes in permitting status [40]. In October, 1986 Chemical Leaman Tank submitted a permit as a generator of less than 1,000 kg-month for halogenated solvents used in degreasing (F001) and halogenated solvents (F002). These compounds included but were not limited to tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane.

In 1999, CLTL was acquired and restructured to become a wholly owned subsidiary of Quality Carriers, Inc. (QCI). QCI, in turn, was a wholly owned subsidiary of Quality Distribution, Inc. (QDI). Correspondence dated July 22, 1999 indicated that QDI submitted a change in permitting status on behalf of QCI to become a Conditionally Exempt Small Quantity Generator (CESQG) subject to generating less than 220 pounds of hazardous waste under USEPA identification PAD099427908[94]. Characteristics of the regulated nonlisted hazardous waste as defined in 40CFR Parts 261.20-261.24 are as follows: ignitable (D001) and toxicity characteristics for cadmium (D006), lead (D008), benzene (D018), and 1,4-dichlorobenezene (D027).

Changes in permitting status due to the recent acquisition of the facility by Venezia, if there have been any, were not located by URS during the data review process.

2.3 Operational History

CLTL developed the Site in 1960 as a trucking terminal. Operations on Site were conducted at two buildings located along the north and south ends of the property. The southern building was used by CLTL as an engine rebuild shop. The northern building was used as offices and a truck maintenance garage.

From December 1965 until November 1973, wastewater containing petroleum oils, acids, synthetic latexes and acrylates[32] generated from the internal and external washing of trucks was collected in two unlined interconnected lagoons located approximately 400 feet behind the Terminal building (**Figure 4**). The first lagoon was approximately 24 feet by 32 feet and 2 feet deep while the second lagoon was 28 feet by 34 feet and 3 feet deep. The lagoons were connected by a 4 inch pipe. The estimated volume of wastewater received by the lagoons was approximately 200 to 300 gallons per day (gpd)[40]. The lagoon system was eliminated in November 1973, and replaced by a pour-in-place concrete holding tank with an estimated capacity of 25,000 gallons. Since 1979 wastewater was hauled off site for treatment[40]. The internal flushing of tank trucks was terminated in May 1979 according to a letter from CLTL to PADER[32]. However, the Part A Application for Hazardous Waste Permit which was submitted in late 1980 indicates states that "wastewater treatment rinsate from cleaning of tank trailers may contain these (hazardous waste) products"[5].

In November 1980, CLTL filed a Part A Application for Hazardous Waste Permit with USEPA[5]. The records submitted to USEPA indicate that CLTL was filing these documents as a TSD facility because wastewater from the washing of tank trucks as well as residual chemicals remaining in the trucks prior to washing were stored on Site (50,000 gal. tank capacity and 5,000 gal. container capacity) for more than 90 days. In August 1981, USEPA granted CLTL interim status to operate as a hazardous waste management facility under EPA ID PAD099427908, which permitted CLTL to store process generated wastes on Site in tanks and/or containers[10]. According to the application, the processes performed at the Site generated the following hazardous wastes:

LIST OF HAZARDOUS WASTES GENERATED BY CLTL – 1980

USEPA Waste Code	Waste Description	USEPA Waste Code	Waste Description
P005	Allyl Alcohol	U088	Diethyl Phthalate
P020	2-Sec-Butyl-4, 6-Dinitrophenol	U092	Dimethylamine
P024	p-Chloroanline	U097	Dimethylcarbamoyl Chloride
P053	Ethylenediamine	U098	1,1-Dimethyl Hydrazine
U008	Acrylic Acid	U102	Dimethyl Phthalate
U012	Aniline	U104	2,4-Dinitrophenol
U019	Benzene	U105	2,4-Dinitrotoluene
U031	n-Butyl Alcohol	U107	Di-N-Octyl Phthalate
U037	Chlorobenzene	U110	Dipropylamine
U043	Chloroethene	U112	Ethyl Acetate
U044	Chloroform	U113	Ethyl Acrylate
U045	Chloromethane	U117	Ethyl Ether
U048	2-Chlorophenol	U118	Ethyl Methacrylate
U051	Cresote	U122	Formaldehyde
U052	Cresols	U123	Formic Acid
U054	Cresylic Acid	U125	Furfural
U055	Cumene	U133	Hydrazine

(Continued on the following page)

USEPA Waste Code	Waste Description	USEPA Waste Code	Waste Description
U056	Cyclohexane	U140	Isobutyl Alcohol
U057	Cyclohexanone	U147	Maleic Anhydride
U069	Di-n-Butyl Phthalate	U148	Maleic Hydrazide
U070	1,2-Dichlorobenzene	U154	Methanol
U078	1,1-Dichloroethylene	U159	Methyl Ethyl Ketone (MEK)
U161	Methyl Isobutyl Ketone	U211	Tetrachloromethane
U162	Methyl Methacrylate	U220	Toluene
U165	Naphthalene	U221	Toluenediamine
U169	Nitrobenzene	U223	Toluene Diisocyanate
U182	Paraldehyde	U224	Toxaphene
U188	Phenol	U225	Tribromomethane
U190	Phthalic Anhydride	U227	1,1,2-Trichloroethane
U194	N-Propylamine	U228	Trichloroethene
U196	Pyridine	U238	Urethane
U208	1,1,1,2-Tetrachloroethane	U239	Xylene

A September 9, 1982, Hazardous Waste Inspection Report indicated that washing and rinsing of the interior of tankers at the Nazareth facility had been terminated and that interior washing was performed at other CLTL facilities[13]. Only exterior tanker truck washing was performed at the Nazareth facility using hydrochloric acid and an alkaline cleaning agent.

On June 3, 1983, CLTL submitted a PADER Notification of Hazardous Waste Activity Form ER-SWM-53 requesting deletion of the storage of hazardous waste for periods in excess of 90 days. In this letter, CLTL also requested permission to withdraw from Interim Status[18]. Correspondence dated January, 1984, indicates a formal request by CLTL to withdraw from submitting the Part B Application[26]. This request was granted by PADER on March 13, 1984. PADER further terminated CLTL's interim status as a TSD facility as requested[28]. The shop at the southern end of the property used for the repair and maintenance of tractor trailers was closed in December 1984[33].

As stated previously, in October 1986, CLTL submitted a permit as a generator of less than 1,000 kg-month for halogenated solvents used in degreasing (F001) and halogenated solvents (F002)[41]. These compounds included but were not limited to tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane.

In April 1990, CLTL registered seven underground storage tanks (USTs) with PADER[51,52,53]. These USTs consisted of three diesel fuel tanks installed in 1960 each with 4,000 gallon capacity (USTs 001, 002, and 003), two heating oil tanks installed in 1960 (UST 006) and 1973 (UST 007) each with 6,000 gallon capacity, one 1,000 gallon tank waste oil tank installed in 1973 (UST 005), and one 550 gallon waste oil tank installed in 1963 (UST 004). A UST Closure Notification Form was submitted by EnviroPower on behalf of CLTL on August 14, 1995, for the pending closure of all seven USTs[65].

In October 1995, PADER received closure reports submitted by EnviroPower, Inc., on behalf of CLTL, for the seven USTs that were closed. One closure report addressed the removal activities for the three former regulated 4,000 gallon diesel fuel USTs[71]. The second closure report addressed the closure of the two former non-regulated 6,000 gallon heating oil USTs[70]. The third closure report addresses the removal activities of the two regulated waste oil USTs with capacities of 550 and 1,000 gallons[69]. A letter from the PADER Regional Water Quality Specialist to CLTL[54] indicated the following items needed to be addressed before the closure requirements had been met:

1) A PADEP Hydrologist would review the documents since soil contamination was encountered;
2) Chain-of-Custody forms for soil samples needed to be included;
3) Soil samples of stockpiled material needed to be collected prior to using it as backfill; and,
4) Documentation of proper disposal of contaminated soil was required[76].

CLTL's response to PADEP comments was issued on January 5, 1996, in which assignment of the closure report to a Department hydrologist was acknowledged and the Chain-of-Custody forms were included[77]. The response also included an explanation about contaminated soil stockpiled on Site. CLTL intended to bioremediate the stockpiled soils for on Site disposal. A closure report documenting the decontamination of the soils was to be submitted to PADEP on February 28, 1997 following the completion of the bioremediation activities[87] A letter from EnviroPower to PADEP documenting a telephone conversation regarding the dismantling of the biopiles was located in the PADEP files. However an acknowledgment of this conversation was not documented by PADEP [89].According to this April 16 letter, the biopiles were to be dismantled and the soil redistributed on-site

As stated previously, in 1999 CLTL was acquired and restructured to become a wholly owned subsidiary of Quality Carriers, Inc. (QCI). QCI, in turn, was a wholly owned subsidiary of Quality Distribution, Inc. (QDI). Correspondence dated July 22, 1999, indicated that QDI submitted a change in permitting status on behalf of QCI to become a Conditionally Exempt Small Quantity Generator (CESQG) subject to generating less than 220 pounds of hazardous waste under USEPA identification PAD099427908[94]. Characteristics of the regulated nonlisted hazardous waste as defined in 40CFR Parts 261.20-261.24 are as follows: ignitable (D001) and toxicity

characteristics for cadmium (D006), lead (D008), benzene (D018) and 1,4-dichlorobenezene (D027).

Venezia leased the rear portion of the Site from Quality Carriers from the mid 1990s until December 8, 2006, when Venezia purchased the property. Venezia currently hauls non-hazardous bulk solids from the Nazareth facility via tanker trucks. Changes in permitting status due to the recent acquisition of the facility by Venezia, if there have been any, were not located by URS.

2.4 Historic Facility Inspections and Permitting

2.4.1 Hazardous Waste

Based on information obtained during a detailed review of available files, periodic hazardous waste inspections have been conducted at the facility since 1982 (Source: PADEP files, 2007). The earlier inspections from this time period cited numerous violations relating to the storage and handling of hazardous wastes. The more serious violations included:

- Failure to properly characterize and decommission two lagoons located on Site[30];
- Failure to analyze waste materials added to storage tanks or containers [30];
- Failure to inspect and monitor structural integrity of holding tank and containers [30];
- Failure to document waste stream quantities on hazardous waste manifests [42] ; and

Other less serious infractions included:

- Failure to post proper procedures for drivers when transporting hazardous waste [35];
- Proper completion of paperwork prior to transporting hazardous waste [34,59];
- Exceptions and omissions on waste manifests [35,36]; and
- Miscellaneous record keeping issues [38].

The hazardous waste inspection reports were reviewed by URS and are retained in PADEP and/or EPAs files.

On July 24, 1986, a Hazardous Waste Inspection was conducted and several manifest violations were noted[37]. The most serious violation was that the total quantity transported was not recorded on several manifests. Internal memos indicate that operators were notified of the situation and asked to complete manifests properly[38,39].

On October 23, 1986, PADEP met with CLTL to discuss 28 additional manifest violations where no quantity was reported[42]. These violations resulted in a Civil Penalty against CLTL which was settled on December 31, 1991[54,55,56,57,58,59,60,61]. The resulting settlement between PADEP and CLTL was $15,000, which was paid on January 24, 1992[62].

In addition to these violations, illegal dumping of wastewater was reported by a former CLTL employee[48,49]. While news reports indicate that PADEP responded to these accusations by

meeting with CLTL and collecting soil samples, documentation of these events were not located by URS in PADEP or USEPA files.

The most recent hazardous waste inspection was conducted by PADEP on August 5, 1992. No violations were noted during the inspection. The inspector characterized the facility as a transporter only and not a storage and/or disposal facility.

Information obtained from the USEPA Envirofacts website (2007) lists Venezia as part of the Pennsylvania Land Management and Waste Recycling program. The Nazareth facility has a permit for an above ground storage tank (permit number 39-36984). This permit was received on August 5, 1989. Also listed for this facility under the name of Chemical Leaman Tank Lines is a permit (permit number 48-06637) for seven storage tanks which was issued on August 5, 1989. According to eFACTS, Venezia Hauling Inc. was cited during a September 20, 2005 inspection for failure to maintain required records. A Notice of Violation (NOV) was issued on November 18, 2005. The citation was corrected on January 6, 2006. Permitting documentation was not located by URS in the PADEP or USEPA files.

2.4.2 Air Quality

Venezia operates at the Nazareth facility as a general freight trucking handler of concrete dust and powder. A search of the PADEP eFACTS website (2007) under air permitting indicates no listing for Venezia, Quality Carriers, or CLTL in Nazareth, Pennsylvania. According to the PADEP and USEPA documents reviewed by URS there is no documentation indicating an air emission source at the facility.

2.5 Previous Site Investigations

2.5.1 Preliminary Assessment Report

A Preliminary Assessment Report (PAR) was issued to CLTL by PADER in October 1985 following a Site visit by PADER on August 2, 1985[29]. In this report, information about the unlined lagoons, the integrity of the concrete holding tank and available analytical data was presented. The first lagoon was approximately 24 feet by 32 feet and 2 feet deep while the second lagoon was 28 feet by 34 feet and 3 feet deep. The lagoons were connected by a 4 inch pipe and were used from December 1965 to November 1973 to store wastewater from cleaning tank trailers which may have contained residual product. The products typically cleaned from the tanker trucks were petroleum oils, acids, synthetic latexes and acrylates. Analysis of the wastewater for pH, alkalinity, sulfate, specific conductance, total solids, and suspended solids occurred in November 1971. The subsequent analytical results presented in CLTL's letter dated October 1, 1985, have no units of measure indicated[32]. No priority pollutant (PP), target compound list (TCL), or target analyte list (TAL) analyses of the lagoon water or wastewater was documented.

In November 1973, a poured-in-place concrete holding tank was installed to replace the lagoon system. At this time the lagoons were backfilled with stone and covered with aggregate. A letter from PADER requested additional information regarding the decommissioning of the lagoons, but no information was provided by CLTL[29]. Wastewater contained in the holding tank was hauled off Site for disposal. At the request of PADER, the integrity of the concrete holding tank was evaluated by doing a 72-hour standing head test at which time no change in liquid

level was observed[31]. While a visual inspection of the drained tank was suggested by PADER, no visual inspection was documented.

In response to the PAR, a non-sampling Site reconnaissance inspection of the CLTL facility was conducted on July 24, 1986 by PADER. Observations made by PADER during that visit indicated the following:

- No air quality readings were measured above background;
- No on Site evidence existed of the presence of the former lagoons, which were located 400 feet from the back wall of the Terminal building and 100 feet west of the fence surrounding the storage tank. Because the lagoons were decommissioned in November 1973, the lagoons would have to be sampled via test pit excavations or drilling to collect samples from the bottom of the lagoons;
- No signs of stained soil, oily sheens, or stressed vegetation were observed on the property or in the vicinity of the unnamed creek which was located south of the property (**Figure 4**). A drainage gulley (currently still present) was noted at the southeastern corner of the property connecting the parking area with the unnamed creek;
- The entire property was covered with coarse road-bed grade stone; and
- No domestic water supply wells were located within one mile of the Site. The nearest home (located 800 feet east of the Site) used a cistern for drinking water. The Terminal was supplied with drinking water from the Blue Mountain Consolidated Water Company.

A Summary Report presenting these observations was prepared for the USEPA by NUS and submitted on August 22, 1986[40]. The conclusions in this report state that a Site inspection for CLTL was not recommended due to the lack of drinking water wells and therefore, human targets within one mile of the Site. While the Summary Report states that no further action was warranted at the CLTL facility, the Technical Directive Document (TDD) attached to the report indicated that a Site reconnaissance would be performed and a sampling plan developed[36]. Documents confirming these activities were not located by URS in either the PADEP or USEPA files.

2.5.2 UST Closures

In August 1995, CLTL filed a UST Closure Notification form with the PADEP for three diesel fuel tanks installed in 1960 each with 4,000 gallon capacity (USTs 001, 002, and 003), two heating oil tanks installed in 1960 (UST 006) and 1973 (UST 007) each with 6,000 gallon capacity, one 1,000 gallon tank waste oil tank installed in 1973 (UST 005), and one 550 gallon waste oil tank installed in 1963 (UST 004). The non-diesel fuel USTs were removed from September 18 through 26, 1995, and the three diesel fuel USTs were removed on October 5, 1995. Prior to removal, 1,450 gallons of used motor oil, heating oil, and diesel fuel were removed from the seven tanks, manifested, and transported for recycling. Once removed the tanks were cleaned and disposed. A discrepancy was noted in tank size between the PADEP Storage Tank Data System (STDS) and the Closure Report submitted to PADEP by CLTL for the waste oil USTs[68,71]. Upon removal, tank 005 was observed to be a 1,000 gallon tank rather than the reported 550 gallon tank. Additionally, there is a discrepancy between the 1990 registration and the closure reports for USTs 006 and 007. The registration form indicates these were non-

regulated heating oil USTs. The closure report indicates that these tanks were non-regulated fuel oil or #2 oil. As only heating oil USTs would be non-regulated, it is presumed that these tanks were used for storage heating oil as indicated on the 1990 registration.

Former Diesel USTs - The three regulated diesel fuel USTs (tanks 001, 002 and 003), their pump dispenser islands, and associated product piping were removed on October 5, 1995. During the removal of the diesel fuel UST system, stained soils, odors and elevated photoionization (PID) readings were observed. Soil samples were collected from the tank, pump dispenser island, and product piping areas (**Figure 5**). The soil samples were analyzed for Total Petroleum Hydrocarbons (TPH), for which there is no current regulatory standard. The analytical results are presented in **Table 2**. Soil samples are identified as follows:

- ST – Tank Excavation
- SD – Pump Dispenser Island
- SP – Product Piping

According to the analytical results, TPH was identified in 13 of 16 soil samples collected from the excavation. TPH concentrations ranged from 69 mg/kg to 6,700 mg/kg. The highest concentrations of TPH were detected between 7 and 14 feet below ground surface (bgs).

Overexcavation was performed and contaminated soils were stockpiled on Site and covered by polyethylene sheeting pending treatment and/or disposal. Approximately 685 cubic yards of fuel -contaminated soil was removed from the diesel fuel UST excavation. There is no indication that additional samples were collected from the pits following overexcavation, and therefore, the remaining soils quality is unknown.

Former Heating Oil USTs – The two non-regulated 6,000 gallon heating oil USTs (tanks 006 and 007) were removed in September 1995. Both tanks appeared to be in good condition; however, soil staining was observed around the fill port of tank 006. Four soil samples were collected from the base of the tank 006 excavation and beneath the fill port (**Figure 6**). Samples were analyzed for TPH (**Table 2**). Analytical results for the sample collected at the base (19 feet bgs) of the southern portion of the excavation contained TPH at 562 mg/kg. TPH was not detected in samples collected from sidewalls of the tank 006 southern excavation or from the floor of the tank 006 northern excavation (**Figure 6**). Removal of contaminated soil continued until TPH concentrations were below acceptable limits [presumably 500 mg/kg for a release greater than one year old, based on the limit prescribed in PADEP's 1993 Tank Closure Requirements Document (PADEP personal communication with URS, August 27, 2007)], as verified by a second sample collected from the new base (21 feet bgs) of the southern portion of the excavation, which had a TPH concentration of 14.1 mg/kg. Approximately 300 cubic yards of impacted soil was removed and stockpiled on Site from the tank 006 excavation. No impacted soil was observed during the removal of tank 007. Seven soil samples were collected and analyzed for TPH. TPH was not detected in soil samples collected from the tank 007 excavation (**Table 2**).

Former Waste Oil Tanks – The two regulated used waste oil tanks (tank 004 - 550 gallon capacity and tank 005 - 1,000 gallon capacity) were removed in September 1995. The integrity of both tanks appeared to be sound. However, soil staining was observed around the fill holes at both locations and at the bottom of the tank 004 excavation. One sample was collected from the base of the tank 005 excavation and three from the sidewalls and bottom of the tank 004 pit

(**Figure 7**). These soil samples were analyzed for TPH and lead (**Table 2**). Analytical results for the one soil sample collected from the tank 005 excavation were below detectable limits (BDL) for TPH (10 mg/kg) and the PADEP Residential Medium-Specific Concentration (MSC) for lead (450 mg/kg). Analytical results for two samples collected from the base of the tank 004 excavation at 7 feet bgs indicated TPH concentrations of 8,690 and 4,190 mg/kg. The lead concentrations were below the MSC in all tank 004 soil samples. The soil around tank 004 required additional excavating and sampling until TPH concentrations were below detectable limits for TPH and the MSC for lead, as verified by the collection of five additional post-excavation samples from the tank 004 pit. Approximately 150 tons and 50 tons (a total of 170 cubic yards) of impacted soil were removed from the soil surrounding tanks 004 and 005, respectively. The soil was stockpiled on Site and covered by polyethylene sheeting pending treatment and/or disposal. Original tank registration information indicated that tank 005 was 550 gallons, but upon closure, the tank volume was determined to be 1,000 gallons. A corrected storage tank registration form was completed on October 30, 1995, and submitted to PADEP[72].

UST Closure Reports - During the removal and closure of the seven USTs, a reportable release was filed by Montgomery Watson on behalf of CLTL based on elevated PID levels and soil odor[67]. No quantity was reported. A PADEP Notice of Contamination was completed Montgomery Watson and faxed to PADEP. PADEP responded requesting that a Site Characterization Report be issued[68]. Additional correspondence on November 28, 1995 from PADEP to EnviroPower discussed Act 16 of 1995 and included a revised registration of storage tank forms[73].

On October 30 1995, three closure reports were submitted to PADEP by EnviroPower, Inc., on behalf CLTL, for the seven USTs. PADEP comments for the closure reports indicated that the reports were being forwarded to a PADEP hydrogeologist for further review, that chain-of-custody forms were needed, that any stockpiled contaminated soil must be sampled before being used as backfill, and that documentation of proper disposal of the stockpiled contaminated soil should be provided[76].

On January 5 1996, EnviroPower addressed PADEP's comments and enclosed the chain-of-custody forms[77]. In this letter EnviroPower states that:

> "…two soil stockpiles totaling approximately 1,155 cubic yards were sampled in 100 cubic yard intervals. A total of twelve samples were collected from the stockpiles of which three stock pile sample results were below DEP's limits for TPH and lead. The stockpiled soils represented by these three samples were used as backfill."

URS was unable to locate in the PADEP or USEPA files information about when the stockpile sampling was performed, who performed the sampling, or what the analytical results were. Available documentation does indicate that an estimated 300 cubic yards of stockpiled soil containing concentrations of TPH and lead below PADEP-established limits (500 mg/kg for TPH) were used as backfill on Site in the diesel fuel UST excavation. The remaining stockpiled soil (855 cubic yards) was bioremediated on Site and a closure report documenting the decontamination of the soils was submitted to PADEP following the completion of the bioremediation activities. A detailed discussion of the soils bioremediation is presented in Section 2.5.3.

Review of the closure reports by the PADEP hydrogeologist indicated that additional Site characterization was needed for closure to be approved. EnviroPower indicated in their reponse to PADEP's comments that a Site Characterization Work Plan (SCWP) would be initiated in accordance with PADEP's Corrective Action Process regulations. A discussion of the SCWP is presented in Section 2.5.4.

2.5.3 Soil Bioremediation Following UST Closure

A soil bioremediation treatment plan was submitted by EnviroPower to PADEP on March 20, 1996, following characterization of the soil stockpiled on Site[77]. PADEP comments and direct approval of the bioremediation treatment plan were not located by URS in either PADEP or USEPA files.

The soil treatment system was constructed from April 15 through 18, 1996. The treatment system design was based on soil volume and type. Stockpiled soil was separated into five soil biocells. Nitrogen, oxygen and phosphorous were added to the soil to stimulate the microbial community within the soil. The nitrogen and phosphorus used were agricultural grade ammonium-nitrate and diammonium phosphate. The oxygen was supplied through an aeration system constructed within each soil cell. The internal aeration system consisted of three two-inch polyvinylchloride lateral aeration pipes attached to an external blower unit. Monthly system monitoring of injection air velocities and blower unit parameters were performed by EnviroPower. Quarterly soil samples were collected by EnviroPower on August 6 and November 19, 1996. Soil samples were analyzed for soil fertility parameters (pH, soluble salts, nitrate-nitrogen, ammonia-nitrogen and extractable phosphorous) and microbiological parameters (total heterotrophs, TPH-diesel range organics (DRO), and TPH-motor oil degraders). Results of the November 1996 sampling event indicated that TPH-DRO concentrations were below the PADEP clean-up standard of 500 mg/kg, which suggested that the soils had been adequately treated and that no further treatment was necessary. EnviroPower submitted a Soil Bioremediation Report to PADEP on February 28, 1997[87]. Based on a letter from EnviroPower to PADEP dated April 16, 1997, PADEP approved the report via a phone conversation and indicated that the biopiles could be dismantled and the soil redistributed on Site[89].

2.5.4 Groundwater Characterization in the Former Diesel Fuel UST Area

A SCWP was submitted by EnviroPower to PADEP for approval on January 9, 1996, to address the subsurface release of diesel fuel from the former USTs[78]. PADEP comments on the SCWP were made on March 21, 1996[80]. Responses to PADEP comments on the SCWP were issued by EnviroPower on behalf of CLTL on March 29, 1996[82]. Final PADEP comments regarding the work plan were made on April 24, 1996[83].

The work plan was approved and the work performed in May 1996. Two monitoring wells were installed (MW-1 and MW-2) to depths of 100 and 90 feet below ground surface (bgs), respectively (**Figure 8**). Top of bedrock was encountered at 18 feet (MW-1) and 30 feet (MW-2) bgs. A former on Site supply well, with a measured depth of 200 feet bgs, was used in conjunction with MW-1 and MW-2 to determine off Site groundwater flow which was interpreted to be to the northeast. Groundwater samples were collected by EnviroPower in May 1996 from MW-1, MW-2, and the supply well and were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and naphthalene, results for which are reported in **Table 3**. In this sample set, the concentration of benzene detected at MW-1 (12 ug/l) was above PADEP's Used Aquifer Residential MSC of 5 ug/l.

A Site Characterization Report (SCR) was prepared by R.E. Wright Associates and submitted by EnviroPower to PADEP on November 4, 1996[84,86]. Report review by PADEP indicated that the extent of groundwater contamination was not delineated in the SCR and that additional monitoring wells were required[88].

An Additional Site Characterization Report (ASCR) was prepared by R.E. Wright Associates to address comments made by PADEP to the SCR and submitted to PADEP by EnviroPower in October 7, 1997[91]. Additional work included the installation of two monitoring wells (MW-3 and MW-4) downgradient from the former tank pit (**Figure 8**). Hydrocarbon evidence was not observed in the soil samples collected while installing MW-3 and MW-4. Well logs indicate that MW-3 was drilled to a depth of 98 feet while MW-4 was drilled to a depth of 97 feet. Top of bedrock was encountered at 30 feet bgs at both MW-3 and MW-4.

Groundwater samples were collected from MW-1 through MW-4 and the existing supply well on June 16, 1997, January 6, 1998, March 1, 2000, June 19, 2000, September 20, 2000 and December 29, 2000 (**Table 3**). Groundwater samples were analyzed for BTEX, naphthalene, cumene, phenanthrene and fluorene and results were reportedly quarterly to the PADEP. Within this sample set, detected constituent concentrations were above PADEP's Used Aquifer Residential MSCs in the following two samples:

- MW-4 on June 16, 1996, had a benzene concentration of 23 ug/l which was above the Residential MSC of 5 ug/l.
- MW-4 on March 1, 2000, had a naphthalene concentration of 125 ug/l which was above the Residential MSC of 100 ug/l.

Detectable levels of naphthalene, cumene, phenanthrene, and fluorene were present in groundwater samples collected from MW-4 during the last three sampling events (June, December and September, 2000). However, the detected concentrations were below the PADEP Residential Used Aquifer MSC at this downgradient point of compliance (POC) well. Groundwater elevation information from these sampling events are presented in **Table 4.**

Following the performance of the groundwater monitoring discussed above, the Site owner at that time, QDI, requested a determination of No Further Action (NFA) for this Site from PADEP[99]. PADEP responded by requesting the following:

- Potentiometric contour maps for each submittal of groundwater monitoring data;
- An explanation for determination of groundwater flow using only two monitoring wells for events when MW-1 and MW-2 were dry; and,
- An original Professional Geologist (PG) stamp on submitted documents to PADEP.

In addition, PADEP rejected the use of the existing supply well to determine groundwater flow direction due to lack of information regarding its construction[101,102]. Science Application International Corporation (SAIC), on behalf of QDI, responded to PADEP's comments on March 29, 2001[102]. This was the final correspondence located in either USEPA or PADEP files. Recent URS correspondence with PADEP has confirmed that tank closure has not been granted at this facility and that this Site has not been awarded closure/liability protection under either PADEP's Storage Tank and Spill Prevention Act ('Act 32') of July 1989 or PADEP's Land Recycling and Environmental Remediation Standards Act, Chapter 250, Administration of Land

Recycling Program ('Act 2', June, 1997) (25 Pa. Code §§250.1 - 250.708), as revised November 24, 2001.

3.0 RCRA AOCs / SWMUs

As discussed in Section 2.5.1, NUS identified three Areas of Concern (AOCs)/Solid Waste Management Units (SWMUs) at the Venezia (then CLTL) facility during the 1986 Site investigation. These AOCs/SWMUs included the tank-cleaning bay, wastewater holding tank, and the former lagoon area.

The existence of the registered and unregistered USTs, discussed above in Section 2.5.2, were not identified in the NUS report. This is likely because it was not until 1986 that amendments to RCRA enabled USEPA to address environmental problems that could result from USTs storing petroleum and other hazardous substances and it is generally state agencies which have assumed first responsibility for ensuring registration, inspection, decommissioning, and cleanup action relative to USTs.

URS conducted a Site visit as part of this EI assessment. During the Site visit, URS attempted to observe each of the AOCs/SWMUs and document their current condition. In addition, the existence of non-RCRA AOCs were identified as discussed in Section 4.

3.1 Former Unlined Lagoons

According to CLTL, two unlined lagoons were constructed in 1965 to collect wastewater generated from the internal cleaning of tank trucks which began in December 1965 and ceased in May 1979. These lagoons were constructed in the center of the property, approximately 400 feet behind the Terminal building[32](**Figure 4**). The lagoons measured 24 by 32 feet and 28 by 34 feet and were 2 and 3 feet deep, respectively. The two lagoons were interconnected by a 4 inch diameter pipe. The wastewater discharged to the lagoons consisted of rinse water from cleaning tank trailers and residual amounts of product which remained on the tank trailer walls. The products typically cleaned were petroleum oils, acids, synthetic latexes, and acrylates. The estimated volume of wastewater received by the lagoons was 200 to 300 gpd or three to five trucks per day[40]. The only analysis of the wastewater was conducted in November 1971, and the results were as follows:[32]

Analyte	Value (no units were given)
PH	9.0
Alkalinity	890
Sulfate (SO_4)	700
Specific conductance	6,000
Total solids	3,300
Suspended solids	540

No metals or organics sampling of the wastewater was conducted and no documentation indicating sludge or sediment samples were collected from the lagoons was located by URS in the USEPA or PADEP files.

The lagoon system was eliminated in November 1973 and was replaced with a poured-in-place concrete holding tank[40]. Following complete construction of the holding tank, the lagoons were decommissioned by backfilling with roadbed-grade aggregate. Roadbed-grade aggregate covers the entire roadway and parking area on the Site. Visible evidence of these lagoons was not observed during the NUS Site reconnaissance on July 24, 1986, or by URS during the Site visit on June 12, 2007.

3.2 Former Tank Cleaning Bay and Former Underground Sewer Line

According to Site personnel interviewed during the Site visit, the former tank cleaning bay was located in the western bay of the Terminal building. The concrete floor appeared to be pitted and eroded from years of the washing process. Oil stains were visible on the floor. The plumbing system and faucets were located on the western wall.

Documentation in the CLTL Part A Permit Application states that tank trailers were inspected for any remaining undelivered product prior to washing at the concrete pad with a drain that is connected to a collection system[6]. The pad was used for wash down only and was not to receive product. Any product in excess of five gallons remaining in the tanker was reported for determination of redelivery to the customer. Amounts less than five gallons were drained into five gallon pails and emptied into a waste container for off Site disposal. The tanks were washed in a recirculatory system with an aqueous washing solution of sodium hydroxide, sequestrian agents, and defoaming agents. After multiple use of the cleaning solution, it was expended and disposed off Site. URS was unable to determine how long the concrete washing pad was used by CLTL.

Outside the cleaning bay, to the south, was a manhole cover (**Figure 4**). This manhole appeared to be part of an underground sewage line that connected the cleaning bay to the concrete wastewater holding tank. Another manhole was observed southeast of this manhole and west of the road leading to the Maintenance building (**Figure 4**). Site personnel did not know where the sewage line went but did not believe that it was currently in use as all drains in the Terminal building reportedly had been sealed (**Appendix B**, Photo 16).

As previously indicated, washwater that was generated in the cleaning bay of the Terminal building flowed into a cylindrical concrete holding tank and was transported off Site for disposal. It is possible that wastewater flowed through the underground sewage lines observed on Site into the concrete holding tank. Review of Site maps (**Figure 4**), photographs taken during the Site visit (**Appendix B, Photos 13, 14 and 15**) and aerial photographs (**Figure 2**) support this hypothesis.

3.3 Former Concrete Holding Tank

From November 1973 through May 1979, wastewater generated at the facility included the internal flushing of the tank trailers that would have contained residual amounts of chemical substances hauled by these trailers[32]. The washing occurred in the cleaning bay of the Terminal building (**Figure 4**). Wastewater flowed into a cylindrical concrete holding tank and was transported off Site for disposal. It is possible that wastewater was transported through the

underground sewage lines observed on Site to the concrete holding tank. Documentation of external rinsing of tankers indicates that the process continued through August 1985. It is not known when external tanker washing was terminated.

Beginning in November 1973, all wastewater was discharged to the poured-in-place concrete holding tank, and the wastewater subsequently was transported off Site for proper disposal[32]. The frequency of disposal or name(s) of the receiving facility(ies) were not located by URS in the PADEP/USEPA files reviewed. The concrete holding tank was located on the eastern property boundary and was surrounded by a chain link fence[40]. Photographs included in the Part A Permit Application show a cylindrical concrete structure that rises approximately two feet above the ground surface inside a fenced area[6]. Also located in the fenced area was a small maintenance building and a pump, which was located adjacent to the concrete holding tank. A walkway with a guardrail extended across the top of the concrete holding tank. Documents containing detailed information about the dimensions or volume of the holding tank were not located by URS. However, based on information presented in the Part A Interim Status Permit Application, URS estimates the volume of the concrete holding tank to be approximately 25,000 gallons[10].

As a result of a PADEP facility inspection on August 2, 1985, CLTL was asked by PADEP to perform a constant head test on the concrete wastewater holding tank to evaluate its integrity. A 72-hour constant head test was conducted by CLTL on August 13 through August 16, 1985. No discernible change in the water level was observed at that time[31].

During the June 12, 1007, Site visit, URS observed trees and undergrowth in the area of the former concrete holding tank (**Figure 2**). No fencing or indication of a structure was observed at that time. Review of aerial photographs shows vegetation in the area where the former storage tank was located. URS did not locate any documentation in either the PADEP or USDEP files indicating the decommissioning of this structure.

4.0 NON-RCRA AOCs

This section describes AOCs identified by URS that are not necessarily RCRA-regulated but could be or are known-contributors to contamination of Site media.

4.1 Former USTs

Seven USTs were registered by CLTL in 1990 for the Nazareth facility as follows:

- Three 4,000 gallon diesel fuel oil tanks installed in 1960 (UST 001, UST 002 and UST 003)[51]:
- One 550 gallon (UST 004) and one 1,000 gallon (UST 005) used motor oil tanks installed in 1963 and 1973, respectively; and,
- Two 6,000 gallon heating oil tanks (UST 006 and UST 007, installed in 1960 and 1973, respectively).

Removal of all of these tanks occurred in September and October 1995. A detailed discussion of the removal of these seven USTs and re-use of 300 cubic yards of the excavated soils was presented previously in Section 2.5.2. The subsequent treatment of an additional 855 cubic yards of impacted soil removed during UST closure was discussed in Section 2.5.3. The resultant groundwater investigation of the former diesel fuel UST area was discussed in Section 2.5.4. Key findings of the UST removal include the following:

- No evidence of impact at heating oil UST 007;
- Limited impact in the fill port area of heating oil UST 006, which was subsequently overexcavated and re-sampled to demonstrate acceptable levels of TPH (below 500 mg/kg);
- Impact noted in the fill port area of the former waste oil USTs (Tanks 004 and 005) and further impact at the initial base of the UST 004 excavation, which was subsequently overexcavated and re-sampled to demonstrate acceptable concentrations of TPH (below 500 mg/kg);
- Extensive impact in the former diesel fuel UST area (Tanks 001, 002, and 003), which required overexcavation (effectiveness of which was not verified by additional soils sampling) and subsequent groundwater characterization, with the last known sampling event occurring in December 2000.

All of the above tank excavation activities relied on, at the most, excavation samples for TPH and lead. There are no current PADEP-regulatory standards for TPH relative to tank closures. Therefore, it is unknown what the remaining soils quality in the tank excavation areas is relative to PADEP soil MSCs. Additionally, the last correspondence found by URS in PADEP's files is dated March 29, 2001, in which SAIC, on behalf of QDI, presents their response to PADEP's comments to the February 2001 NFA request. Recent URS correspondence with PADEP has confirmed that tank closure has not been granted at this facility, and that this Site has not been closed under PADEP Act 32 or Act 2 programs.

4.2 Mechanical Shops

Mechanical shops are located in both the Terminal building and the Maintenance building (**Figure 4**). A detailed discussion of each location is presented below.

4.2.1 Terminal Building Mechanical Shop

The mechanical shop in the Terminal building was located in the west end of the main garage. The mechanical shop contained an undercarriage pit used to change oil and perform general maintenance on the trucks. The undercarriage pit was a poured concrete trench situated in the center of the garage bay and measuring approximately three feet wide by five feet deep, running the length of the garage bay. A sump was located at the south end of the pit. Lines for compressed air and oil ran through portholes in the west wall of the undercarriage pit. These lines are considered potential conduits for oil migration through the subsurface. The compressed air lines ran to the air compressor located in the mechanical room to the northwest of the garage area. The Terminal building mechanical shop has not been used since before Venezia purchased the property in December 2006.

4.2.2 Maintenance Building Mechanical Shop

The mechanical shop in the Maintenance building is located in the west garage bay of the building. It contains an undercarriage pit used to change oil and perform general maintenance on the trucks. The undercarriage pit is a poured concrete trench situated in the center of the garage bay and measuring approximately three feet wide by five feet deep, running the length of the garage bay. Lines for compressed air and oil run through portholes in the west wall of the undercarriage pit to the oil storage room located west of the shop area. These lines are considered to be potential conduits for oil migration through the subsurface. The oil storage

room contains a 1,000 gallon aboveground storage tank (AST) for new motor oil, a 500 gallon AST for used motor oil and several 55 gallon drums of gear oil.

The maintenance building was closed by CLTL in December 1984 and reopened for leasing in July 1986 to Liquid Carbonic Company[39]. Venezia began leasing the building in the mid-1990s.

4.3 Groundwater Monitoring Wells

Four groundwater monitoring wells were installed on Site in 1996 and 1997 as part of the groundwater characterization in the former diesel fuel UST area (**Figure 8**). Well depths ranged from 90 to 100 feet bgs. The former on Site supply well had a measured depth of 200 feet and was located in a concrete sidewalk west of the Terminal building[86]. However, during URS' Site visit, Venezia representatives indicated that a supply well with a total depth of 304 feet bgs was located behind the southeast corner of the Terminal building adjacent to the septic holding tank (**Figure 8**).

Groundwater samples collected from the monitoring wells and the existing supply well on seven different occasions were analyzed for BTEX, naphthalene, cumene, phenanthrene and fluorene. Analytical results are presented in **Table 3** and discussed in Section 2.5.4 of this report. Groundwater elevations were recorded prior to groundwater sample collection (**Table 4**).

During URS' Site visit on June 12, 2007, only one of the four monitoring wells (MW-4) was located. MW-4 is a flush mount well located in a field along the eastern property boundary. Site personnel indicated that MW-3 was closed by PennDOT due to widening of the gravel road through the Site; however, no documentation was located by URS regarding the closing of this well. MW-1 and MW-2 were not observed on Site, and it is possible that they are covered by gravel material as they are reportedly located in the gravel roadway.

The last time that these monitoring wells were sampled was in December 2000. The wells are considered a concern because they are a potential conduit from the surface to the groundwater, particularly since they are flush mount wells. Proper maintenance or decommissioning of the wells is important to reduce the potential of contamination introduced from the ground surface to the groundwater as well as the liability associated with groundwater contamination.

4.4 Current ASTs

The facility currently has three ASTs on Site, which were observed during URS' Site visit. A 1,000 gallon new motor oil tank and a 500 gallon used motor oil tank are located in a storage room in the northwest corner of the Mechanical building. A 12,000 gallon diesel tank is located directly west of the Mechanical building and has a secondary containment unit surrounding it. Review of the PADEP tank registration database indicates that none of these ASTs are registered. However, the PADEP eFACTS Permit List website shows an aboveground storage tank (001A) with the permit number of 39-36984 registered on August 5, 1989. URS was unable to locate more specific information about this tank.

5.0 DESCRIPTION OF EXPOSURE PATHWAYS FOR ALL RELEASES OR POTENTIAL RELEASES

5.1 Air

Exposure pathways to air can occur due the presence of contaminants in both outdoor air and indoor air. A detailed discussion of the releases associated with both of these pathways for the Venezia facility is presented below.

5.1.1 Outdoor Air

The Venezia facility has been a trucking Terminal and truck maintenance location since its inception in 1960. No stack construction or air emissions have ever been documented for this property. Therefore, there is no exposure pathway or potential for release to outdoor air from this facility.

5.1.2 Indoor Air

To evaluate potential risks to indoor air quality at the Site, URS compared results of groundwater samples collected in 1996, 1997, 1998, and 2000 by CLTL's consultant, R.E. Wright Associates, to current USEPA-PA default residential volatilization to indoor air screening values (see **Table 3**) as published in PADEP's Guidance "Section IV.A.4 - Vapor Intrusion into Buildings from Groundwater and Soil Under the Act 2 Statewide Health Standard", effective January 24, 2004. The PADEP default screening values were derived using the USEPA Johnson & Ettinger model (J&E) with the default assumptions that no separate phase liquid is present, a minimum of five feet of separation distance exists between contamination sources and occupiable structures, soils are not sand or gravel, and no preferential flow pathways are present for the vapor to travel. Comparison of the Site groundwater data indicates no exceedances of the default indoor air criteria referenced above. However, URS contends that there is insufficient information to adequately evaluate probable impacts to indoor air for the following reasons:

- While MW-1 and MW-2 are within the 100 foot radius of the Terminal building (the radius specified by USEPA and PADEP for consideration of the vapor intrusion pathway), limited analytical data exists for these wells. For MW-1 only one sample out of four consecutive quarters was collected due to lack of water in the well and only three total samples out of seven events were able to be collected due to lack of water in the well. MW-2 samples were collected four out of seven times due to lack of water in the well.

- No soils data exists from the tank grave areas for individual organic constituents, which is of particular concern in the former diesel fuel UST area (USTs 001 through 003), that is located within 100 feet of existing occupiable buildings.

- Individual organic constituent concentrations for the 1,155 cubic yards of soils excavated from the UST areas in September and October 1995 are unknown. Approximately 300 cubic yards of this soil were reused on Site as backfill in the diesel fuel UST excavation following "acceptable" TPH results of the untreated stockpile (TPH less than 500 mg/kg) (see Section 2.5.2). The remaining 855 cubic yards was biotreated on Site in 1996 and were shown to have post-treatment TPH results less than 500 mg/kg, at which time the soils were redistributed on Site (see Section 2.5.3). The "redistribution" area is

unknown. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a vapor source to current or future structures at the Site.

- The former lagoon area has not been investigated. This area received 200 to 300 gpd of organic-containing wastewater from December 1965 through November 1973. Although the former diesel tank UST area is located presumably downgradient of the former lagoons, the only constituents analyzed in the diesel tank area have been fuel-related contaminants, not the breadth of constituents that would be necessary to characterize possible lagoon-related impacts. Groundwater present within 100 feet of current buildings may be impacted by the former lagoons, thus necessitating subsequent potential impacts to indoor air via vapor intrusion. Also, future construction in the former lagoon area, though not currently planned, could place a structure within 100 feet of potentially-contaminated former lagoon soils, another possible vapor source.

5.2 Groundwater

Aside from the 1996 and 1997 installation of the four on Site monitoring wells, no detailed Site-specific geologic or hydrogeologic studies have been conducted at the Site. NUS reviewed geologic and hydrogeologic publications in 1986 and concluded that groundwater used by industry and residences in the vicinity of the Site is stored and transmitted through joints and solution channels in the Epler Formation dolomite[40].

The four 90 to 100 foot deep on Site monitoring wells were installed at PADEP's request in 1996 and 1997 to characterize groundwater in the former diesel fuel UST area located in the northeastern portion of the Site. Groundwater elevations were reported six times (**Table 4**). Groundwater samples were collected up to seven times from these wells including the four consecutive quarters in 2000 (**Table 3**). Samples were analyzed for BTEX, naphthalene, cumene, phenanthrene, and fluorene. Detected concentrations were below the PADEP Residential and non-Residential Used Aquifer MSCs for all compounds except benzene (MW-1, 12 mg/l on May 23, 1996 and MW-4, 23 ug/l on June 16, 1997) and naphthalene (MW-4, 125 mg/l on March 1, 2000). The groundwater gradient determined from water levels collected from MW-2, MW-3, and MW-4 on January 6, 1998 (MW-1 was dry) indicate flow to the north toward the quarry operations, located across Route 248. Only one of these monitoring wells has reportedly been properly decommissioned (MW-3) and two (MW-1 and MW-2) were not found during URS' June 2007 Site visit. Based on recent correspondence between URS and PADEP, Act 2/Act 32 closure of the former diesel fuel UST area has not been granted because additional data is required for proper characterization of the plume. URS recommends future decommissioning of wells not used as part of a continuing monitoring program, as open wells may be potential conduits for contaminants to the underlying aquifer.

As described above in Section 5.1.2, 855 cubic yards of biotreated soils with TPH concentrations less than 500 mg/kg were "redistributed" on Site at an unknown location. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a source of contamination to Site groundwater.

There were two unlined lagoons located at the Venezia facility from 1965 through 1973 with dimensions of 24 by 32 feet and 28 by 34 feet. Lagoon depths were two feet and three feet, respectively. The lagoons received wastewater containing volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) from the internal cleaning of tanker trucks, at an

estimated volumetric rate of 200 to 300 gpd. In November 1973, a concrete holding tank was constructed to replace the lagoon system and to house the wastewater before being hauled off Site to a treatment facility, at which time the lagoons were backfilled with stone and covered with aggregate. There are no known applicable analytical results for wastewater contained in the lagoons or the concrete holding tank or for the sediment/soils in the lagoon area. The impact these structures may have (past or present) on Site environmental media, including groundwater, is unknown.

According to the 1986 NUS report, most residents in the vicinity of the Site are serviced by public water supplied by the Blue Mountain Water Company. Today, this service is provided by Pennsylvania American Water Company Blue Mountain Division (PAWBMD). According to Pennsylvania's Drinking Water Reporting System (Source: Pennsylvania Drinking Water System, 2007), PAWBMD public water system currently serves a population of 20,447 via 8,687 connections. Water is provided from a surface water source.

At the time of the 1986 NUS report, no wells were located within one mile of the Site. However, a 2007 database search of the Pennsylvania Groundwater Information System (PaGWIS) indicates that 23 private water supply wells are located within a one mile radius of the Site (**Figure 9**). Six wells are located within one half mile of Venezia. Of these six wells, three are domestic wells, two are supply wells, and one is reportedly unused. The supply wells and unused well are owned by the Coplay Cement Company which is located north of the Venezia facility. These wells have reported depths of 140 to 200 feet. The three domestic wells are owned by private property owners and have reported well depths ranging from 165 to 250 feet. The reported well depths for the remaining 17 wells within one mile of Venezia range from 150 to 300 feet bgs.

There may be up to two supply wells present on the Venezia property, neither of which are listed in the PaGWIS database. As discussed previously, the supply well located during URS' Site visit is in a different location and has a different total depth than the supply well presumably used to determine the groundwater gradient in the 1996 R.E. Wright Associates SCR[(85)] (see Section 4.3). According to facility personnel, the currently known supply well is not used for any purpose. Potable water is furnished to the Site by PAWBMD. A review of USEPA and PADEP records indicates that the supply well may never have been used for potable water, but was rather used for the washing of tanker trucks at the Terminal building[(39)].

5.3 Surface Water

The nearest surface water body is northeast of the Venezia facility, located adjacent to the quarry operations. In addition, two small lakes/large ponds were identified southeast of the Site. These lakes/ponds appear to be fed by a stream south of the facility.

A drainage gully and unnamed creek were identified by NUS in 1986 along the southern property boundary[(40)]. In the NUS report, the drainage gully was located in the southeast corner of the property and ran from the parking area to the unnamed ditch (**Figure 4**). No signs of stained soil, oily sheens, or stressed vegetation were observed on the property or in the vicinity of the creek at the time of NUS' 1986 Site visit. The 1992 photorevised USGS topographic map indicates that this creek is intermittent in its flow. The April 6, 2001 FEMA floodplain map identified this waterway as Tributary #3 to Shoeneck Creek (**Figure 10**) (Source: FEMA, 2007). This creek is also identified by PADEP online records as Jacoby-Bushkill Creek (**Figure 9**) (Source: PADEP eMapPA, 2007). The banks of the tributary or creek behind the Venezia

property are within the 100 year flood plain. PADEP identifies this creek as a non-attaining segment of the Integrated List according to the standards set by the Pennsylvania Clean Water Act. These standards are based upon aquatic life, fish consumption, recreational use and potable water supply criteria. URS did not observe the gully or the creek at the time of the June 2007 Site visit.

Venezia holds no NPDES permits and thus there is no known direct discharge to the surface water. Wastewater generated on Site is collected in a holding tank at the rear of each of the buildings, is pumped periodically, and is transported to a treatment facility.

The potential for indirect discharge of Site contaminants to surface water is possible via the groundwater flow pathway. The known and possible sources of contamination to on Site groundwater were outlined above in Section 5.3. As the groundwater flow gradient for the Site has not been fully established (limited data from the monitoring wells in the northeast corner of the Site indicate flow to the north toward the Conoy quarry), and there is currently insufficient information relative to groundwater quality from possible known on Site sources, it is not possible at this time to determine if impacted groundwater may be discharging to either the surface water bodies located northeast or south/southeast of the Site. Therefore, it is currently unknown whether a complete exposure pathway from surface water to off Site human and ecological receptors is present.

5.4 Soil

According to information obtained from the Penn State Soil Map program, the Venezia facility is underlain by an Urban land soil type, classified as Z11. Physical properties of these soils are highly variable and not well defined. According to the USDA Natural Resources Conservation Service, the depth to the top of bedrock ranges from 10 to 98 inches. Bedrock has been encountered at the Site during UST removal and monitoring well installation at depths ranging from 18 to 30 feet bgs. The soil has no salinity, and the Site has an 8 percent slope. The southern portion of the Site appears to be within the 100 year floodplain.

The two former unlined lagoons were located near the center of the property. These shallow lagoons (three feet deep or less) received VOC and SVOC wastewater from 1965 through 1973 at a rate of approximately 300 gpd or less. The former lagoons were closed by backfilling them with crushed stone[40] in 1973 when they were replaced by a 25,000 gallon (approx.) concrete wastewater holding tank. There are no known applicable analytical results for wastewater contained in the lagoons or the concrete holding tank or for the sediment/soils in the lagoon area. The impact these structures may have (past or present) on Site environmental media, including soils, is unknown.

Soil samples collected in 1995 during the removal of seven USTs showed the presence of TPH above PADEP's 1993 500 mg/kg limit for tank closure (**Table 2**), particularly in the diesel fuel UST area which was not resampled following overexcavation. Overexcavation and resampling of the soils within the UST 004 and UST 006 graves indicated TPH concentrations below the 500 mg/kg level at both locations and the UST excavations showed initial TPH concentrations below the 500 mg/kg level. There is no current PADEP standard for TPH and there are no soils data from the tank grave areas for individual organic constituents to be compared to current PADEP Act 2 MSCs. Additionally, individual organic constituent concentrations for the 1,155 cubic yards of soils excavated from the UST areas in September and October 1995 are unknown. Approximately 300 cubic yards of this soil were reused on Site as backfill in the

diesel fuel UST excavation following “acceptable” TPH results of the untreated stockpile (TPH less than 500 mg/kg) (see Section 2.5.2). The remaining 855 cubic yards was biotreated on Site in 1996 and were shown to have post-treatment TPH results less than 500 mg/kg, at which time the soils were redistributed on Site (see Section 2.5.3). The “redistribution” area is unknown. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they meet current PADEP Act 2 MSCs for soils.

Possible current receptors to on Site surface soils (0 to 2 feet bgs) include Site workers, trespassers, and visitors. Generally, it is presumed that the majority of impacts in soils in the former UST areas and former lagoon area would be below 2 feet bgs, with the exception of the backfilled soils placed in the diesel fuel UST area (depth of which is unknown) and the undefined area where biotreated UST soils were "redistributed". However, wastewater held in the former lagoons could have resulted in surface soil contamination laterally outward from the lagoon sidewalls. Possible receptors to on Site subsurface soils (2 to 15 feet bgs) would include utility workers or future construction workers. The soils in the former UST areas and former lagoon areas could possibly be intercepted by these receptor groups. Because the chemical quality of these soils is unknown, it cannot be determined whether a current or future complete exposure pathway is present

6.0 EXPOSURE PATHWAY CONTROLS AND/OR RELEASE CONTROLS INSTITUTED AT THE FACILITY

6.1 Air

A detailed discussion of the controls associated with the outdoor and indoor air pathways at the Venezia facility is presented below.

6.1.1 Outdoor Air

As documented in Section 5.1.1, there are no known releases to outdoor air at the Venezia facility from current or past operations, therefore, no controls for this media are necessary.

6.1.2 Indoor Air

A description of the potential indoor air exposure pathway via soil vapor intrusion was provided previously in Section 5.1.2.

There are currently no controls on the indoor air pathway at the Site. It is unknown whether such controls are needed to mitigate the soil vapor/groundwater-to-indoor air pathway because the data currently available for the Site is insufficient to determine if the pathway is complete.

There are known areas of UST-related contamination located within 100 feet of currently present occupiable structures; however, available data to characterize the contamination is limited [i.e. minimal rounds of groundwater data in MW-1 and MW-2 and lack of analytical data for individual organic constituents in the tank grave soils and redistributed excavated (treated and untreated) soils]. Additionally, there is no soils or groundwater data for the former lagoon area. Groundwater data that is available from MW-1 and MW-2 for diesel fuel contaminants indicates that the pathway is incomplete.

Further investigation of Site soils and groundwater is warranted to determine if the vapor intrusion to indoor air pathway is complete and, if so, to dictate possible implementation of controls such as deed restrictions on future construction or use of vapor barriers in the lagoon area or engineering controls for existing buildings.

6.2 Groundwater

Groundwater is known to be impacted in the vicinity of the former diesel fuel UST area, though most recent analytical results from 2000 show no exceedances of applicable PADEP MSCs at the POC well (MW-4). Additionally, the impacts to groundwater resulting from the former unlined lagoons, which operated from 1965 to 1973 and received up to 300 gpd of VOC and SVOC-containing wastewater, are unknown.

Groundwater is reportedly currently not used on Site though a supply well is present. On Site groundwater use is not deed restricted. There are six known domestic or industrial wells located within one-half mile of the Site, three of which are located at the quarry north of the Site across Route 248. Groundwater flow is presumably north to the quarry due to their dewatering operations. There are no known controls on off Site groundwater flow and no knowledge as to whether such controls are necessary based on information currently available.

6.3 Surface Water

As documented in Section 5.3, there is no known direct discharge from Site operations to surface water, and thus, no controls for this exposure pathway are necessary. However, it is currently unknown whether the indirect groundwater discharge-to-surface water pathway is complete or, if it is, whether the diffuse groundwater discharges would result in unacceptable limits to off Site human or ecological receptors. Therefore, it is unknown if such controls on groundwater discharge to off Site surface water bodies are necessary.

6.4 Soil

Several potential areas of soil contamination exist at the Site as discussed in Section 5.4.

The active operations portion of the Site is unsecured. There are no gates to control access to the facility. No visitor sign-in area was observed during the Site visit. No exposure pathway controls have been instituted to limit contact with on Site soils by workers, visitors, trespassers, future utility, or construction workers, and it is unknown whether such controls are warranted because the possible areas of soils contamination have not been adequately characterized.

7.0 CONCLUSIONS AND FOLLOW-UP ACTION ITEMS

Using known and available information obtained from USEPA and PADEP, URS completed the "Documentation Of Environmental Indicator Determination, RCRA Corrective Action Environmental Indicator" checklists for RCRIS code (CA725) – Current Human Exposures Under Control and RCRIS code (CA750) – Migration of Contaminated Groundwater Under Control (**Appendix C**). Based on available information, completion of the checklists indicates that outdoor air and sediments do not appear to be of concern at the Site. However, because sufficient characterization information is not available for the RCRA-regulated wastewater lagoons which were filled in 1973 and the non-RCRA regulated UST areas (most particularly the diesel fuel area) and associated treated and untreated tank excavation soils which were reused

at the Site, it cannot be concluded with certainty that indoor air, groundwater, surface water, or soils are not impacted by historical Site features above appropriate regulatory standards to protect human health.

Act 32 tank closure and/or Act 2 closure of the former diesel fuel UST area has yet to be granted by the PADEP. Additionally, the PADEP Northeast Region and USEPA-Region III will decide if additional information or sample collection at the facility is required to determine whether or not the environmental indicators have been met or if Corrective Action is required by the facility, specifically relative to the former wastewater lagoons.

8.0 REFERENCES

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Northampton County Public Access website http://www.ncpub.org/Main/Home.aspx

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Pennsylvania Code of Regulations Title 25 Chapter 245. Effective September 21, 1991. *Administration of the Storage Tank and Spill Prevention Program* (including the provisions of the Storage Tank and Spill Prevention Act of July 6, 1989, 35 P. S. § § 6021.101—6021.2104, or Act 32).

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Pennsylvania Department of Environmental Protection. June 8, 2002. *Pennsylvania Land Recycling Program Technical Guidance Manual*, 126 p. and Appendices.

Pennsylvania Department of Environmental Protection. January 2004. *Final Guidance on Vapor Intrusion into Buildings from Groundwater and Soil under Act 2 Statewide Health Standard.*

Pennsylvania Department of Environmental Protection, Storage Tank Cleanup http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp accessed June 28, 2007

Pennsylvania Groundwater Information System http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMenu accessed June 26, 2007

United States Census Bureau. Fact Sheet for Nazareth Borough. http://factfinder.census.gov/servlet/SAFFFacts accessed June 26, 2007

United States Census Bureau. Fact Sheet for Lower Nazareth Township. http://factfinder.census.gov/servlet/SAFFFacts accessed June 26, 2007

TABLES

Table 1

SITE VISIT PARTICIPANTS
Venezia as Chemical Leaman Tank Lines, Inc.
Nazareth, Pennsylvania
June 12, 2007

Person on Site	Company Represented
Bill Feher	Pennsylvania Department of Environmental Protection (570)826-2511
Paul Jarecki	Pennsylvania Department of Environmental Protection (570)826-2474
Tracey McGurk	Pennsylvania Department of Environmental Protection (570)826-2076
Tina Entenman	URS (717)635-7927
Rebecca Walsh	URS (717)635-7910
Ed Kern	Venezia (610)495-5200 ext. 222
John Venezia	Venezia (610)495-5200 ext. 236

Table 2

HISTORIC SOIL SAMPLE RESULTS
Venezia as Chemical Leaman Tank Lines, Inc.
Nazareth, Pennsylvania

Location	Sample ID	Sample Depth (ft bgs)	Sample Collection Date	Parameter	Analytical Method	Detection Limit (mg/kg)	Analytical Results (mg/kg)	Parameter	Analytical Method	Detection Limit (mg/kg)	Analytical Results (mg/kg)
Tank 001	ST-6	14'	10/5/1995	TPH-DRO	8015M	5.3	2,500				
	ST-7	14'	10/5/1995	TPH-DRO	8015M	5.3	200				
	ST-8	14'	10/5/1995	TPH-DRO	8015M	5.3	ND				
	SP-1	4'	10/5/1995	TPH-DRO	8015M	5.3	ND				
	SD-1	3.5'	10/5/1995	TPH-DRO	8015M	5.3	4,000				
Tank 002	ST-3	14'	10/5/1995	TPH-DRO	8015M	5.3	2,200				
	ST-4	14'	10/5/1995	TPH-DRO	8015M	5.3	6,700				
	ST-5	14'	10/5/1995	TPH-DRO	8015M	5.3	6.9				
	SP-2	4'	10/5/1995	TPH-DRO	8015M	5.3	63				
	SD-2	3.5'	10/5/1995	TPH-DRO	8015M	5.3	7.2				
Tank 003	ST-1	14'	10/5/1995	TPH-DRO	8015M	5.3	3,800				
	ST-2	14'	10/5/1995	TPH-DRO	8015M	5.3	3,300				
	SD-3	7'	10/5/1995	TPH-DRO	8015M	5.3	2,200				
	SD-4	8'	10/5/1995	TPH-DRO	8015M	5.3	5,000				
	001-001-18	18'	9/21/1995	TPH-DRO	8015M	1.0	ND				
	001-002-21	21'	9/21/1995	TPH-DRO	8015M	1.0	40.3				
Tank 004	004-001-07	7'	9/18/1995	TPH	418.1	150	8,690	Lead	6010	5	8.7
	004-002-07	7'	9/18/1995	TPH	418.1	60	4,190	Lead	6010	5	12.0
	004-PIPE-02	2'	9/18/1995	TPH	418.1	10	ND	Lead	6010	5	8.8
	004-003-09	9'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	9.1
	004-004-05	5'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	9.2
	004-005-05	5'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	5.8
	004-006-05	5'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	ND
	004-007-05	5'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	ND
Tank 005	005-001-09	9'	9/20/1995	TPH	418.1	10	ND	Lead	6010	5	9.4
Tank 006	006-001-19	19'	9/18/1995	TPH	DRO 8015	1.0	562				
	006-002-14	14'	9/18/1995	TPH	DRO 8015	1.0	ND				
	006-003-14	14'	9/18/1995	TPH	DRO 8015	1.0	ND				
	006-004-14	14'	9/18/1995	TPH	DRO 8015	1.0	ND				
	006-005-21	21'	9/20/1995	TPH	DRO 8015	1.0	14.1				
	006-006-10	10'	9/20/1995	TPH	DRO 8015	1.0	ND				
	006-007-10	10'	9/20/1995	TPH	DRO 8015	1.0	ND				
	006-008-10	10'	9/20/1995	TPH	DRO8015	1.0	ND				
Tank 007	007-001-12	12'	9/19/1995	TPH	DRO 8015	1.0	ND				
	007-002-12	12'	9/19/1995	TPH	DRO 8015	1.0	ND				
	007-003-12	12'	9/19/1995	TPH	DRO 8015	1.0	ND				
	007-004-12	12'	9/19/1995	TPH	DRO 8015	2.0	ND				
	007-005-12	12'	9/20/1995	TPH	DRO 8015	3.0	ND				
	007-006-12	12'	9/20/1995	TPH	DRO8015	1.0	ND				

Used Aquifer Residential Statewide Health Standard	The PADEP Soil Medium-Specific Concentration (MSC) for lead in a Residential Used Aquifer is 450 mg/kg. No current standard exists for TPH. Prior PADEP Tank Closure Requirements (1993) for a release greater than one year old was 500 mg/kg TPH.

Legend: ND = Not Detected

TPH=Total Petroleum Hydrocarbons

Shaded area indicates overexcavated sample results

Table 3
HISTORIC GROUNDWATER SAMPLE RESULTS
Venezia as
Chemical Leaman Tank Lines, Inc.
Nazareth, Pennsylvania
All Laboratory Results shown in micrograms per liter (ug/l)

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Cumene	Phenanthrene	Fluorene
MW-1	5/23/1996	12	<1	2	74	83	NA	NA	NA
	6/16/1997	<0.5	<0.5	<0.5	<0.2	<2	NA	NA	NA
	1/6/1998	Not Sampled due to Sediment in the Well							
	3/1/2000	Not Sampled-Well was Dry							
	6/19/2000	1.4	<1	<1	NA	<3	<1	<3	<3
	9/20/2000	Not Sampled-Well was Dry							
	12/29/2000	Not Sampled-Well was Dry							
MW-2	5/31/1996	<1	<1	<1	<1	<5	NA	NA	NA
	6/16/1997	<0.5	<0.5	<0.5	<2	<2	NA	NA	NA
	1/6/1998	<1	<1	<1	<3	<5	NA	NA	NA
	3/1/2000	Not Sampled-Well was Dry							
	6/19/2000	<1	1.3	<1	NA	<3	<1	<3	<3
	9/20/2000	Not Sampled-Well was Dry							
	12/29/2000	Not Sampled-Well was Dry							
MW-3	6/16/1997	<0.5	<0.5	<5	<2	<2	NA	NA	NA
	1/6/1998	<1	<1	<1	<3	<5	NA	NA	NA
	3/1/2000	<1	<1	<1	<3	<3	<1	<3	<3
	6/19/2000	<1	<1	<1	NA	<3	<1	<3	<3
	9/20/2000	<1	<1	<1	NA	<3	<1	<3	<3
	12/29/2000	<1	<1	<1	NA	<3	<1	<4.2	<4.2
MW-4	6/16/1997	23	<0.5	<0.5	<79	35	NA	NA	NA
	1/6/1998	<1	<1	<1	<3	<5	NA	NA	NA
	3/1/2000	<10	<10	<10	<30	125	<10	<60	<60
	6/19/2000	4.6	<1	<1	NA	39	6.9	101	64
	9/20/2000	0.27	<1	<1	NA	13	1.1	17	14
	12/29/2000	<1	<1	<1	NA	22.2	1.8	64	18
Existing Supply Well	5/23/1996	<1	<1	<1	<1	<1	NA	NA	NA
	6/16/1997	<0.5	<0.5	<0.5	<2	<2	NA	NA	NA
	1/6/1998	<1	<1	<1	<3	<5	NA	NA	NA
	3/1/2000	<1	<1	<1	<3	<3	<1	<3.6	<3.6
	6/19/2000	<1	<1	<1	NA	<3	<1	<3	<3
	9/20/2000	<1	<1	<1	NA	<3	<1	<3	<3
	12/29/2000	<1	<1	<1	NA	<3	<1	<3	<3
PADEP Used Aquifer Residential Medium Specific Concentrations (MSCs)		5	1,000	700	10,000	100	1,100	1,100	1,500
PADEP Used Aquifer Non-Residential MSCs		5	1,000	700	10,000	100	2,300	1,100	1,900
PADEP Residential Indoor Air MSC		5,900	NOC	27,000	45,000*	NOC	NOC	NOC	NOC

Legend:

	Value above the Used Residential and Non-Residential MSCs
NA	Not Analyzed
NOC	Not of Concern according to PADEP vapor intrusion guidance based
*	PADEP defined Constituent of Potential Indoor Air Concern (COPIAC)

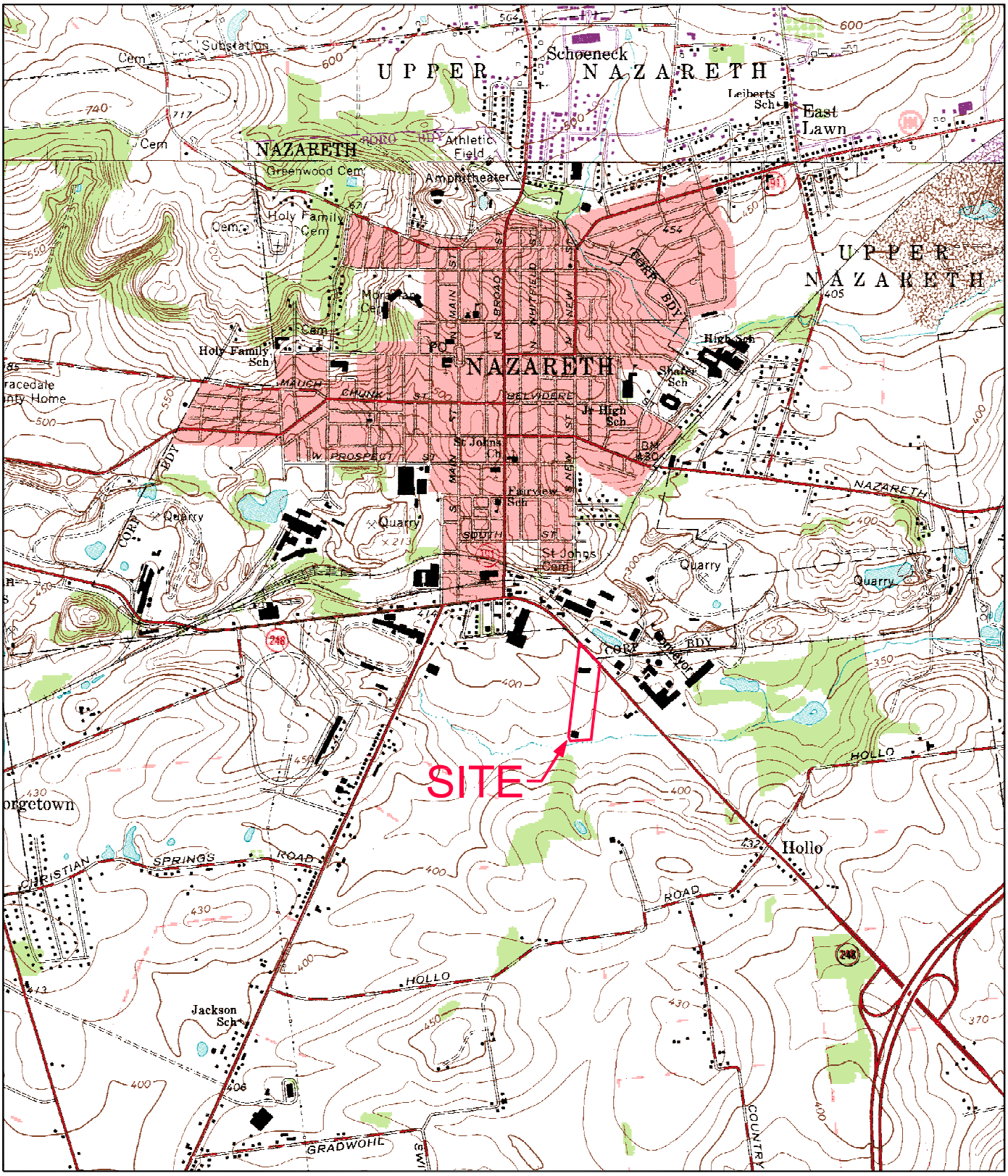
Table 4

HISTORIC GROUNDWATER ELEVATION RESULTS
Venezia as Chemical Leaman Tank Lines, Inc.
Nazareth, Pennsylvania

Well	Date	Top of Casing Elevation (feet AMSL)	Depth to Groundwater (ft. below TOC)	Groundwater Elevation (feet AMSL)	Standing Water in Well (feet)	Total Well Depth (feet TOC)	Well Bottom Elevation (feet AMSL)	Bottom of Casing Depth (feet below TOC)	Casing Bottom Elevation (feet AMSL)
MW-1*	6/16/1997	392.59	79.12	313.47	14.68	93.8	298.79	63.8	328.89
	1/6/1998	392.59	DRY@93.8'	<298.79	0	93.8	298.79	63.8	328.89
	3/1/2000	392.59	DRY@87.45'	<305.14	0	87.45	305.14	63.8	328.89
	6/19/2000	392.59	85.6	306.99	1.85	87.45	305.14	63.8	328.89
	9/20/2000	392.59	DRY@87.45'	<305.14	0	87.45	305.14	63.8	328.89
	12/29/2000	392.59	DRY@87.77'	<304.82	0	87.77	304.82	63.8	328.89
MW-2	6/16/1997	392.76	87.52	305.24	1.63	89.15	303.61	35	357.76
	1/6/1998	392.76	87.26	305.5	1.89	89.15	303.61	35	357.76
	3/1/2000	392.76	DRY@85.30'	<307.46	0	85.3	307.46	35	357.76
	6/19/2000	392.76	81.17	311.59	4.09	85.26	307.5	35	357.76
	9/20/2000	392.76	DRY@80.33	<312.43	0	80.33	312.43	35	357.76
	12/29/2000	392.76	DRY@80.33	<312.43	0	80.33	312.43	35	357.76
MW-3	6/16/1997	392.11	89.01	303.1	8.16	97.17	294.94	30	362.11
	1/6/1998	392.11	95.22	296.89	1.95	97.17	294.94	30	362.11
	3/1/2000	392.11	92.16	299.95	5.01	97.17	294.94	30	362.11
	6/19/2000	392.11	84.22	307.89	12.95	97.17	294.94	30	362.11
	9/20/2000	392.11	89.91	302.2	7.26	97.17	294.94	30	362.11
	12/29/2000	392.11	96.98	395.13	0.19	97.17	294.94	30	362.11
MW-4	6/16/1997	392.51	88.2	304.31	9.4	97.6	294.91	67	325.51
	1/6/1998	392.51	87.29	305.22	10.31	97.6	294.91	67	325.51
	3/1/2000	392.51	79.81	312.7	17.79	97.6	294.91	67	325.51
	6/19/2000	392.51	80.44	312.07	17.16	97.6	294.91	67	325.51
	9/20/2000	392.51	80.9	311.61	16.7	97.6	294.91	67	325.51
	12/29/2000	392.51	91.23	301.28	6.37	97.6	294.91	67	325.51
Site Well	6/16/1997	392.69	88.17	304.52	N/A	~200**	~192.69	unknown	NA
	1/6/1998	392.69	87.25	305.44	N/A	~200**	~192.69	unknown	NA
	3/1/2000	392.69	95.11	297.58	N/A	~200**	~192.69	unknown	NA
	6/19/2000	392.69	85.24	307.45	N/A	~200**	~192.69	unknown	NA
	9/20/2000	392.69	89.25	303.44	N/A	~200**	~192.69	unknown	NA
	12/29/2000	392.69	99.64	293.05	N/A	~200**	~192.69	unknown	NA

Legend:	DRY	Well was dry (no groundwater present within the well) during the sampling site visit. Sediment has collected within the well to the level of the total depth shown. No groundwater was present above the sediment.
	AMSL	Above Mean Sea Level
	TOC	Top of Casing
	*	MW-1 was reconstructed from a 6-inch open rock hole to a 2-inch PVC well because it collapsed to a depth of 72.37 feet below TOC following its original construction on 5/22/96.
	**	The total depth of the water supply well was measured to be approximately 200 feet bgs. The submersible pump in the well may have limited access of the measuring equipment below it and to the bottom of the well. Therefore, a total depth of 200 feet bgs was assumed.
	NA	Not Applicable

FIGURES



0 1000 2000 FEET

GRAPHIC SCALE

N

REFERENCE:
A Portion of USGS 7.5 Minute Topographic Map; Nazareth Quadrangle, Pennsylvania 1964, Photorevised 1992.

TITLE

SITE LOCATION MAP

PROJECT

VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS

4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
www.urscorp.com

SCALE	AS SHOWN	DWN. BY	AWJ	JOB NO.	20497794
DATE	4/10/07	APPR. BY	RYW	FIG. NO.	1

File: L:\GTAC PROJECTS\RCRA Els\2007 Els\0-254 Quality Carriers - 20497794\Dwg\HBQCSC-01.dwg Layout: SLM User: aaron_jones Aug 30, 2007 - 2:38pm

LEGEND

= SITE BOUNDARY

0 500 1000

SCALE IN FEET

N

REFERENCE:
PAMAP PROGRAM 2005 COLOR ORTHOPHOTOS OF PENNSYLVANIA, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY

TITLE

AERIAL PHOTOGRAPH OF SITE

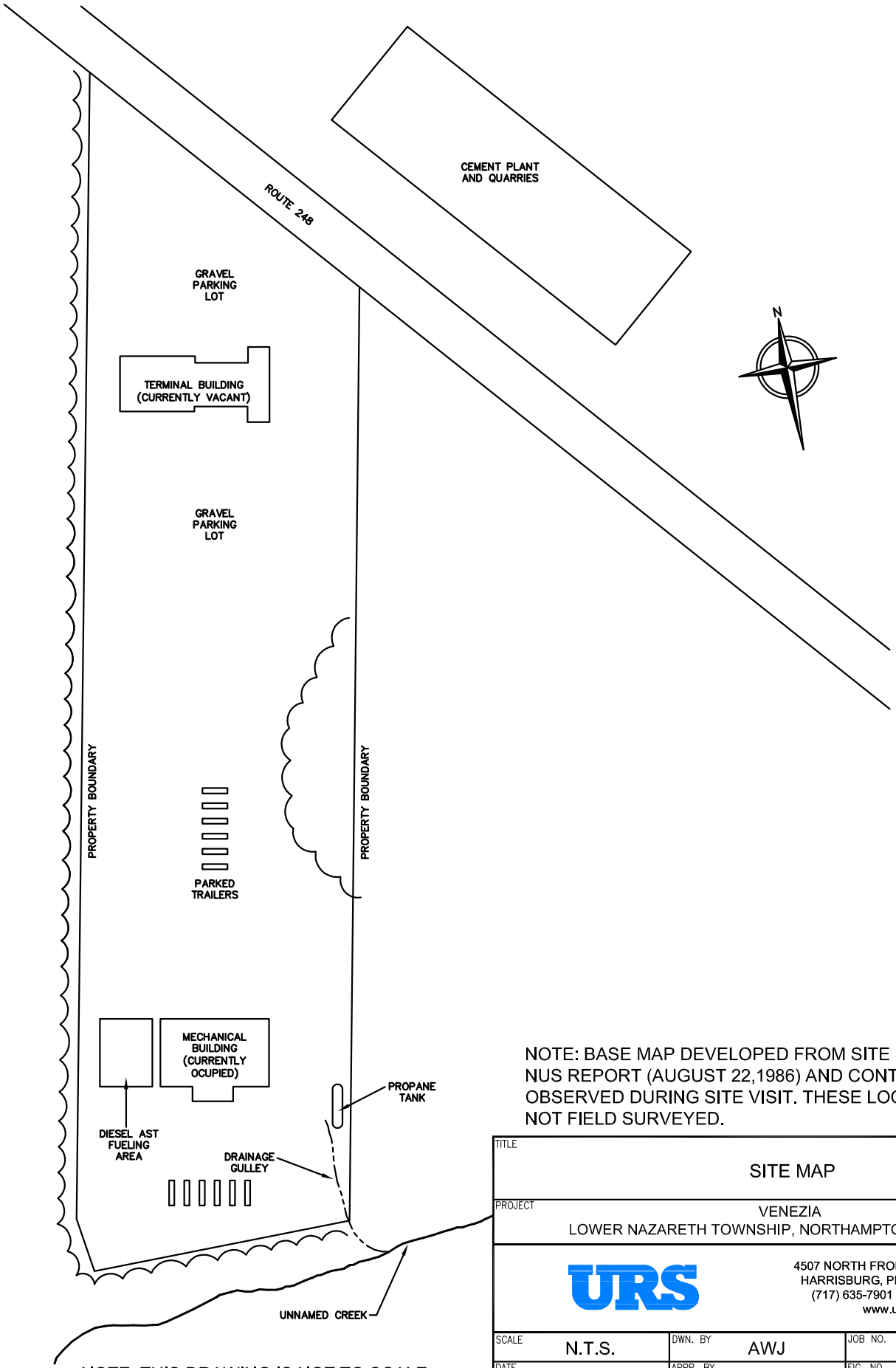
PROJECT

VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS

4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
www.urscorp.com

SCALE	1" = 500'	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/5/07	APPR. BY	RYW	FIG. NO.	2

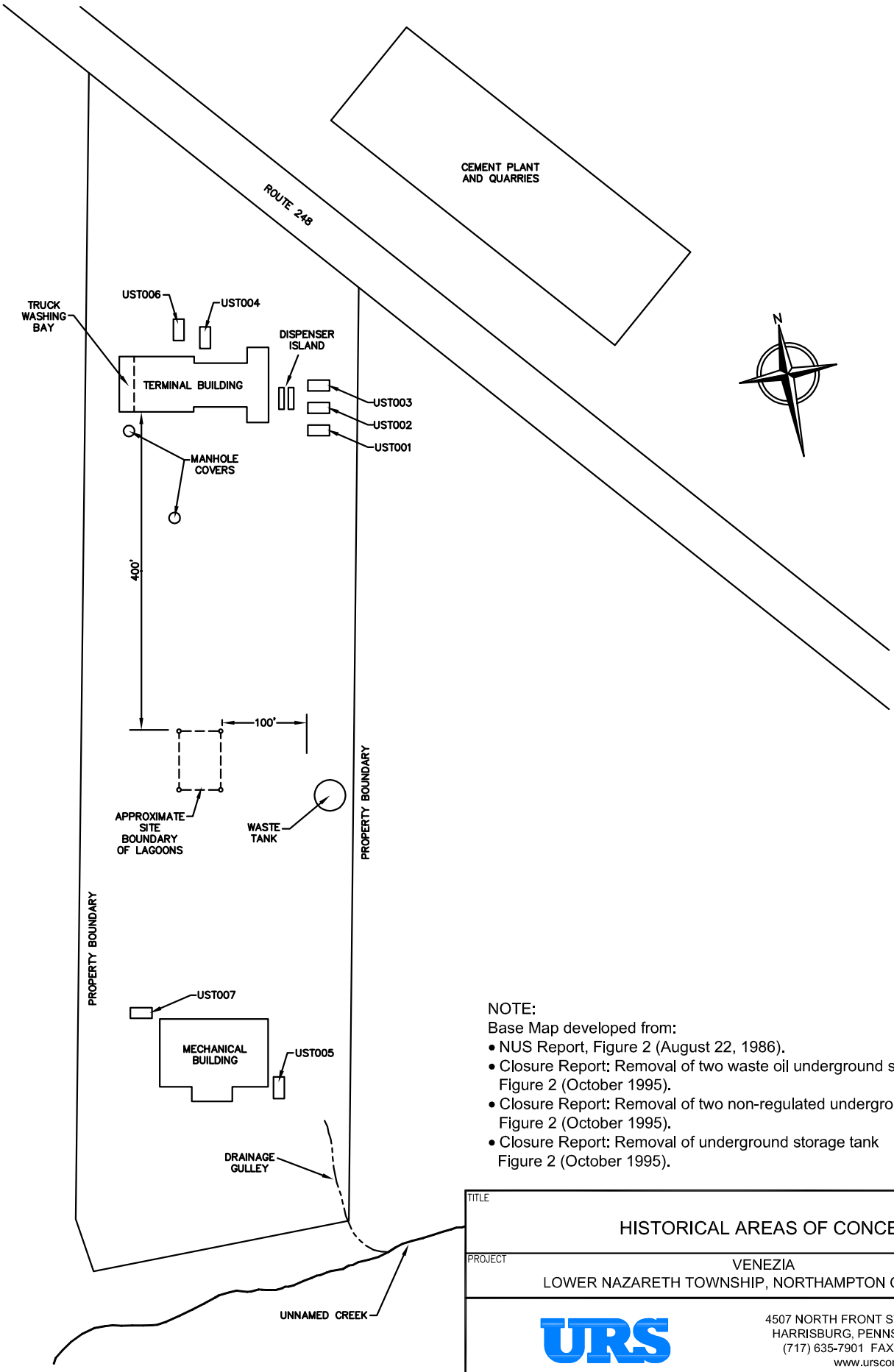


NOTE: THIS DRAWING IS NOT TO SCALE.

NOTE: BASE MAP DEVELOPED FROM SITE SKETCH FOUND IN NUS REPORT (AUGUST 22,1986) AND CONTAINS FEATURES OBSERVED DURING SITE VISIT. THESE LOCATIONS WERE NOT FIELD SURVEYED.

TITLE	SITE MAP		
PROJECT	VENEZIA LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA		
URS	4507 NORTH FRONT STREET, SUITE 200 HARRISBURG, PENNSYLVANIA 17110 (717) 635-7901 FAX (717) 635-7902 www.urscorp.com		
SCALE N.T.S.	DWN. BY AWJ	JOB NO. 20497794.02070	
DATE 6/29/07	APPR. BY RYW	FIG. NO. 3	

File: L:\GTAC PROJECTS\RCRA Els\2007 Els\0-254 Quality Carriers - 20497794\Dwg\HBQCSC-02.dwg Layout: FIG3 User: aaron_jones Aug 30, 2007 - 2:40pm



NOTE:
Base Map developed from:

- NUS Report, Figure 2 (August 22, 1986).
- Closure Report: Removal of two waste oil underground storage tanks Figure 2 (October 1995).
- Closure Report: Removal of two non-regulated underground storage tanks Figure 2 (October 1995).
- Closure Report: Removal of underground storage tank Figure 2 (October 1995).

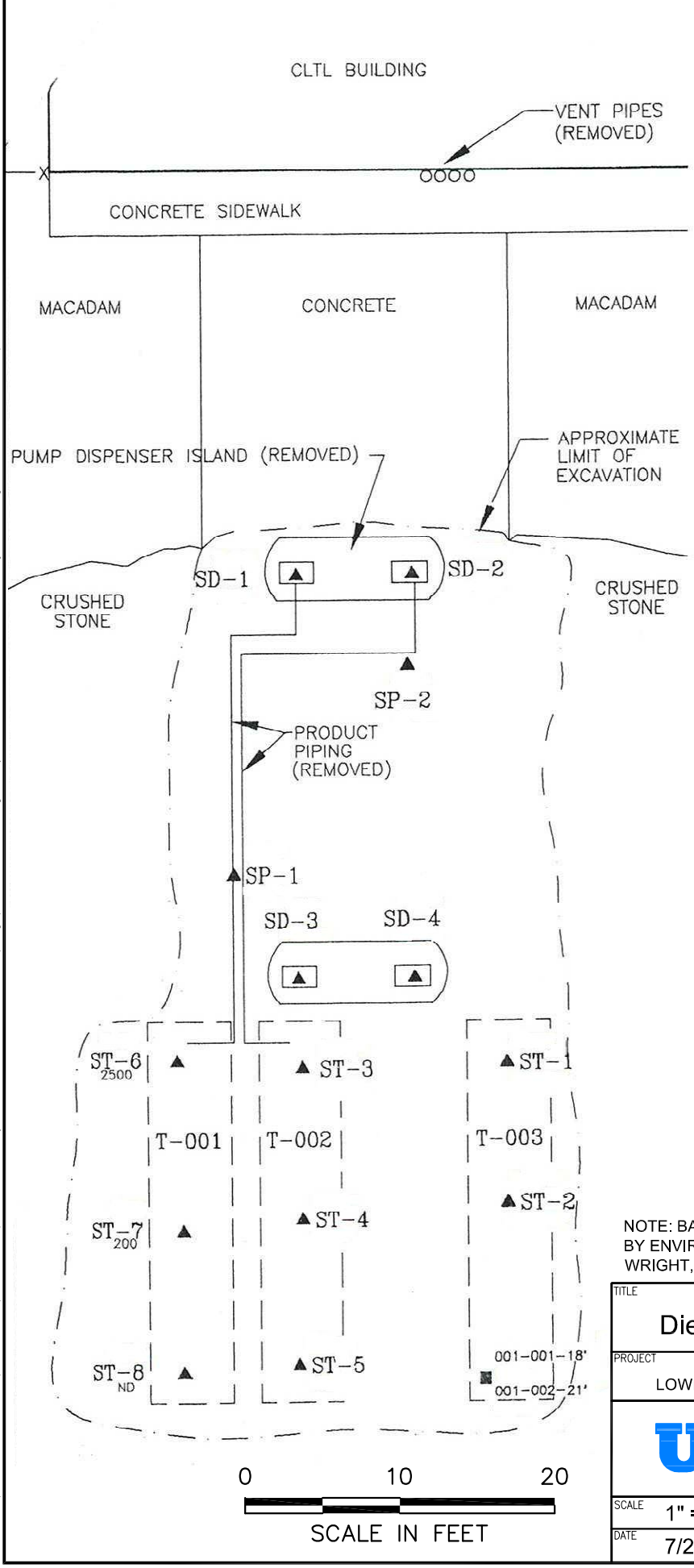
NOTE: THIS DRAWING IS NOT TO SCALE.

TITLE
HISTORICAL AREAS OF CONCERN

PROJECT
VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
www.urscorp.com

SCALE	DWN. BY	JOB NO.
N.T.S.	AWJ	20497794.02070
DATE	APPR. BY	FIG. NO.
6/29/07	RYW	4



N

LEGEND

T-1 — APPROXIMATE LOCATION OF FORMER DIESEL FUEL UST AND REFERENCE NUMBER

▲SD-1 — SOIL SAMPLE LOCATION AND REFERENCE NUMBER

■001-001-18' — SOIL SAMPLE LOCATION, EXCAVATION NUMBER, SAMPLE NUMBER, SAMPLE DEPTH (FEET BELOW GRADE LEVEL)

NOTE: BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY ENVIROPOWER, INC. AND OBSERVATIONS MADE BY R.E. WRIGHT, INC. SEPTEMBER 21 AND OCTOBER 5, 1995.

TITLE: Diesel Fuel UST Soil Sample Location Map

PROJECT: VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
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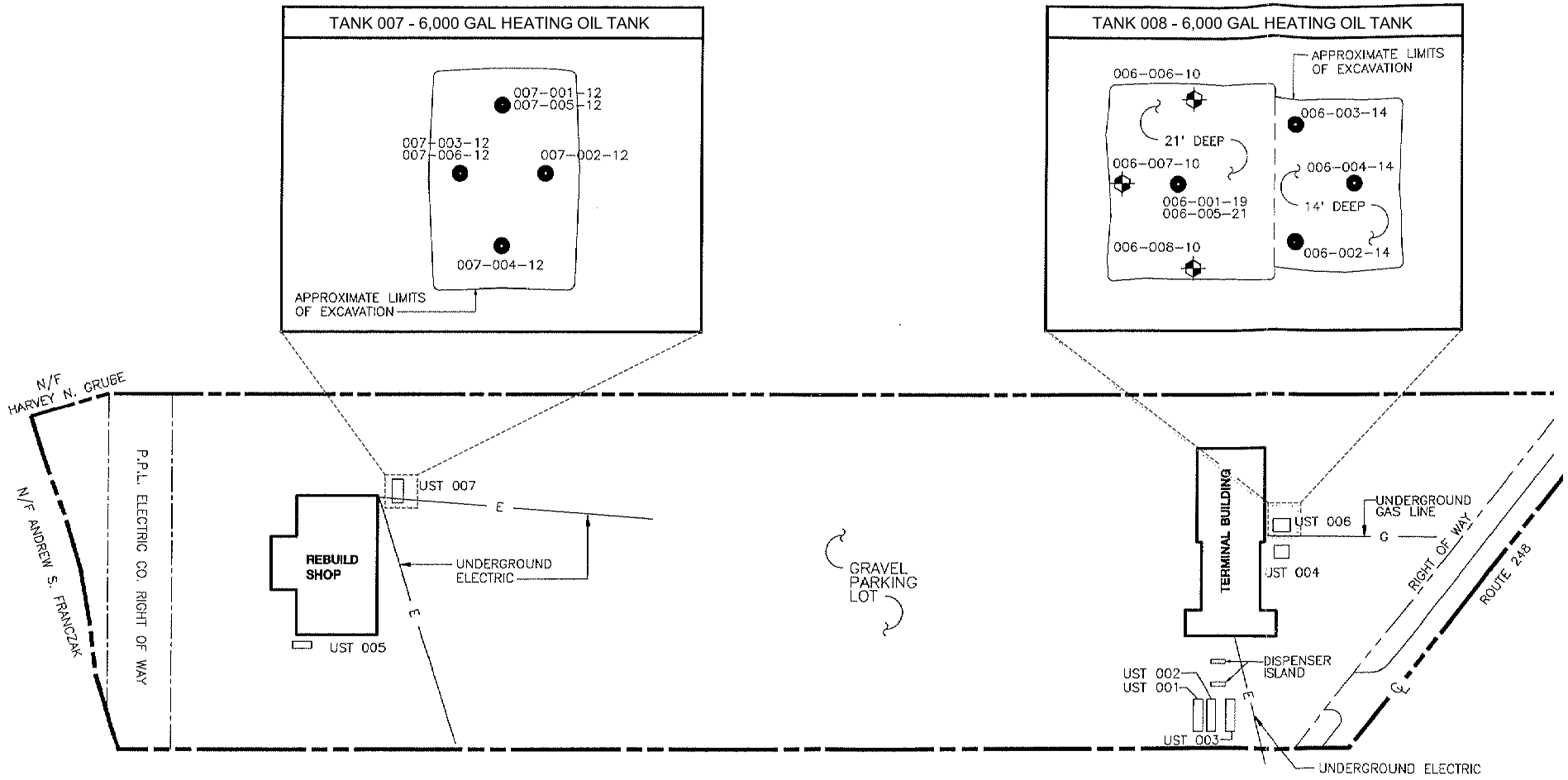
SCALE	1" = 10'	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/23/07	APPR. BY	RYW	FIG. NO.	5



NOTE

BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY ENVIROPOWER, INC. AND OBSERVATIONS MADE BY MONTGOMERY WATSON FROM SEPTEMBER 18 THROUGH 26, 1995.

LEGEND

- BOTTOM SAMPLE LOCATION
- SIDEWALL SAMPLE LOCATION
- PARCEL BOUNDARY

006-001-19 SAMPLE ID
006 EXCAVATION NUMBER
001 SAMPLE NUMBER
19 SAMPLE DEPTH

NOTE: THIS DRAWING IS NOT TO SCALE

TITLE: Heating Oil UST Soil Sample Location Map

PROJECT: VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

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HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
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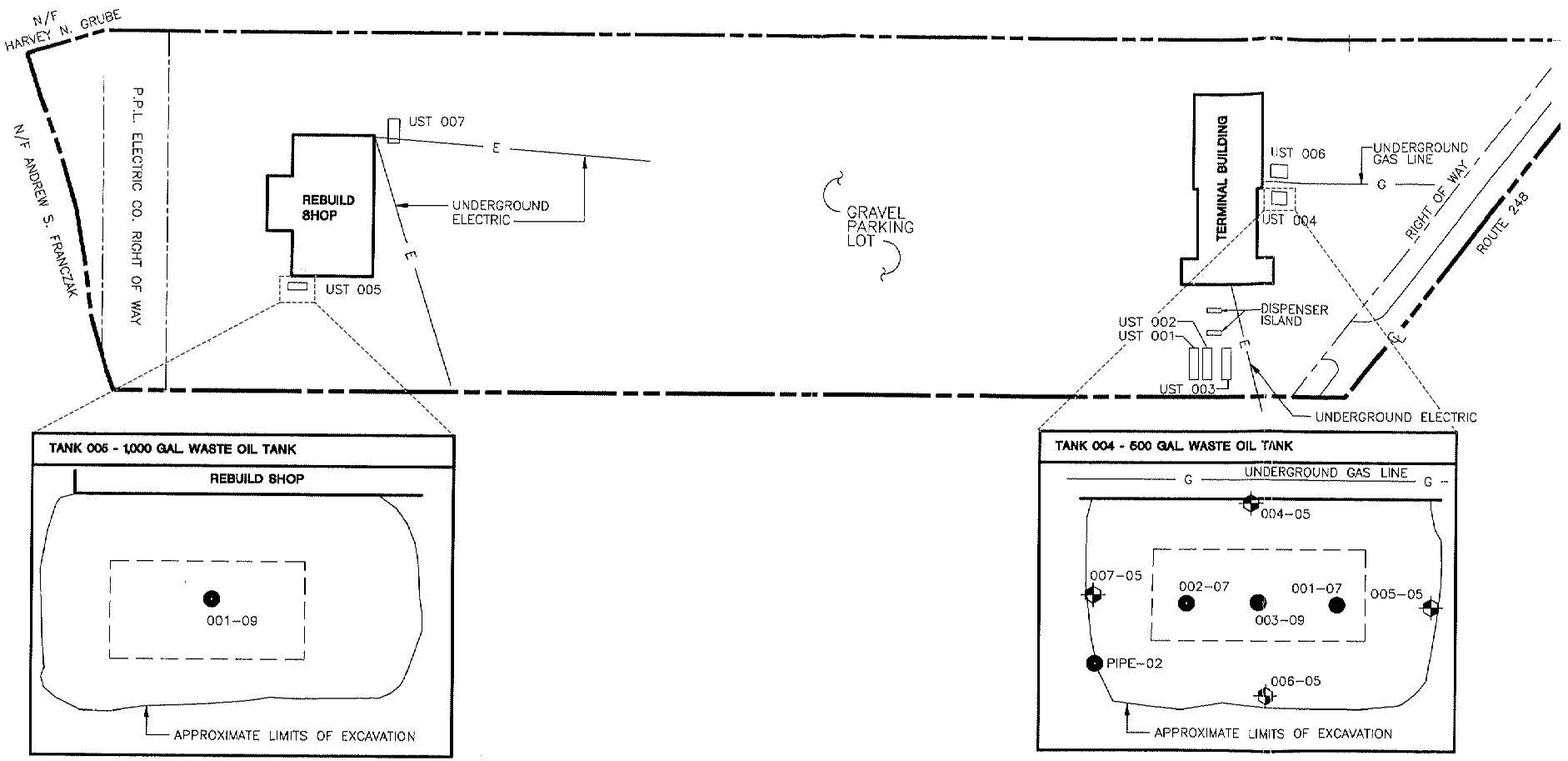
SCALE	N.T.S.	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/23/07	APPR. BY	RYW	FIG. NO.	6

File: L:\GTAC PROJECTS\RCRA EIs\2007 EIs\0-254 Quality Carriers - 20497794\Dwg\HBQCSC-08.dwg Layout: 11x17 User: aaron_jones Aug 30, 2007 - 2:48pm



NOTE

BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY ENVIROPOWER, INC. AND OBSERVATIONS MADE BY MONTGOMERY WATSON FROM SEPTEMBER 18 THROUGH 26, 1995.

LEGEND

- BOTTOM SAMPLE LOCATION
- SIDEWALL SAMPLE LOCATION
- PARCEL BOUNDARY

004-001-07 SAMPLE ID
- 004 EXCAVATION NUMBER
- 001 SAMPLE NUMBER
- 07 SAMPLE DEPTH

N

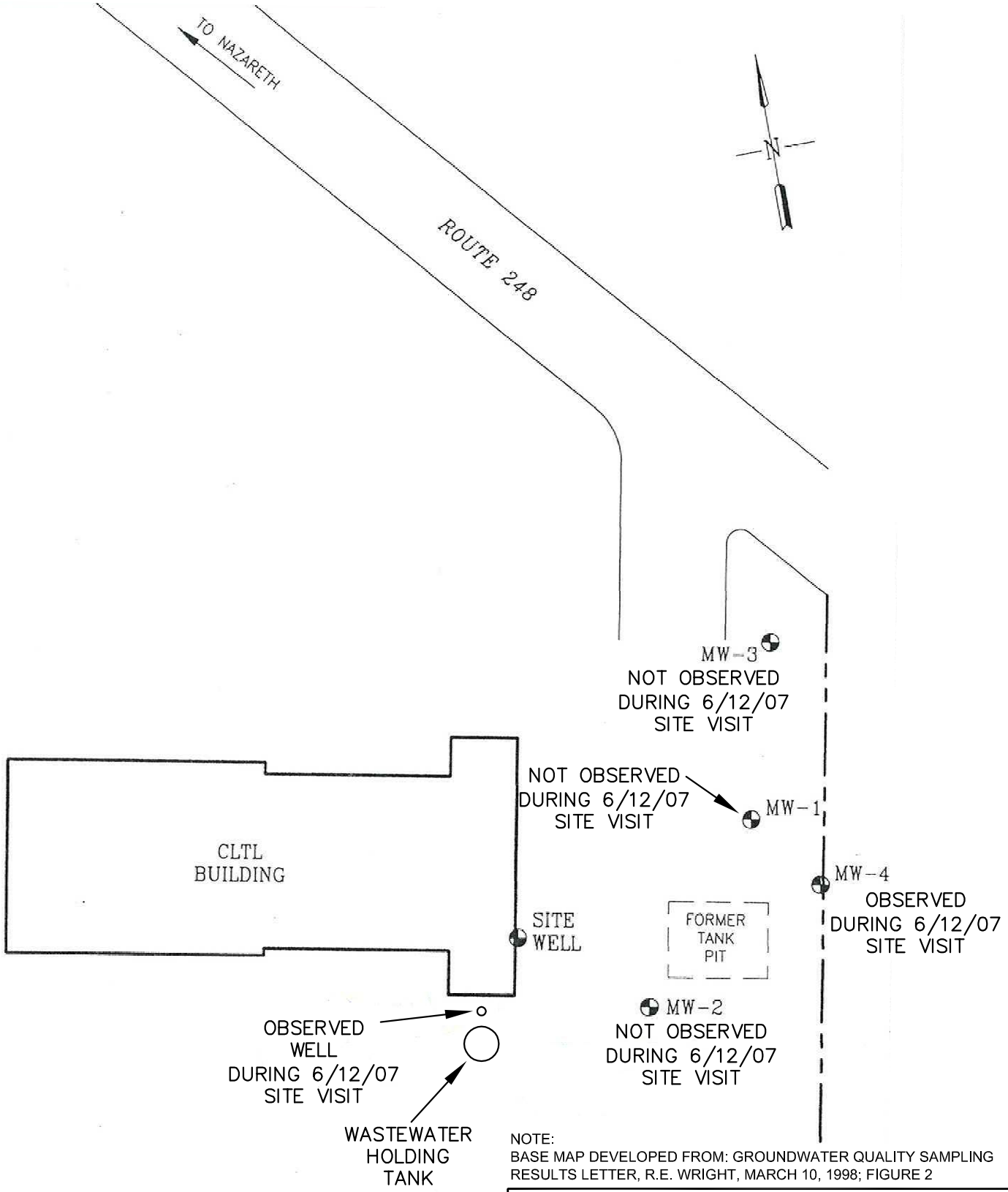
NOTE: THIS DRAWING IS NOT TO SCALE

TITLE: Waste Oil UST
Soil Sample Location Map

PROJECT: VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
www.urscorp.com

SCALE	N.T.S.	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/23/07	APPR. BY	RYW	FIG. NO.	7



NOTE:
BASE MAP DEVELOPED FROM: GROUNDWATER QUALITY SAMPLING RESULTS LETTER, R.E. WRIGHT, MARCH 10, 1998; FIGURE 2

LEGEND

MW-1 MONITORING WELL LOCATION AND REFERENCE NUMBER

PROPERTY LINE

0 50 100

SCALE IN FEET

TITLE

Groundwater Monitoring Well Location Map

PROJECT

VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
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HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
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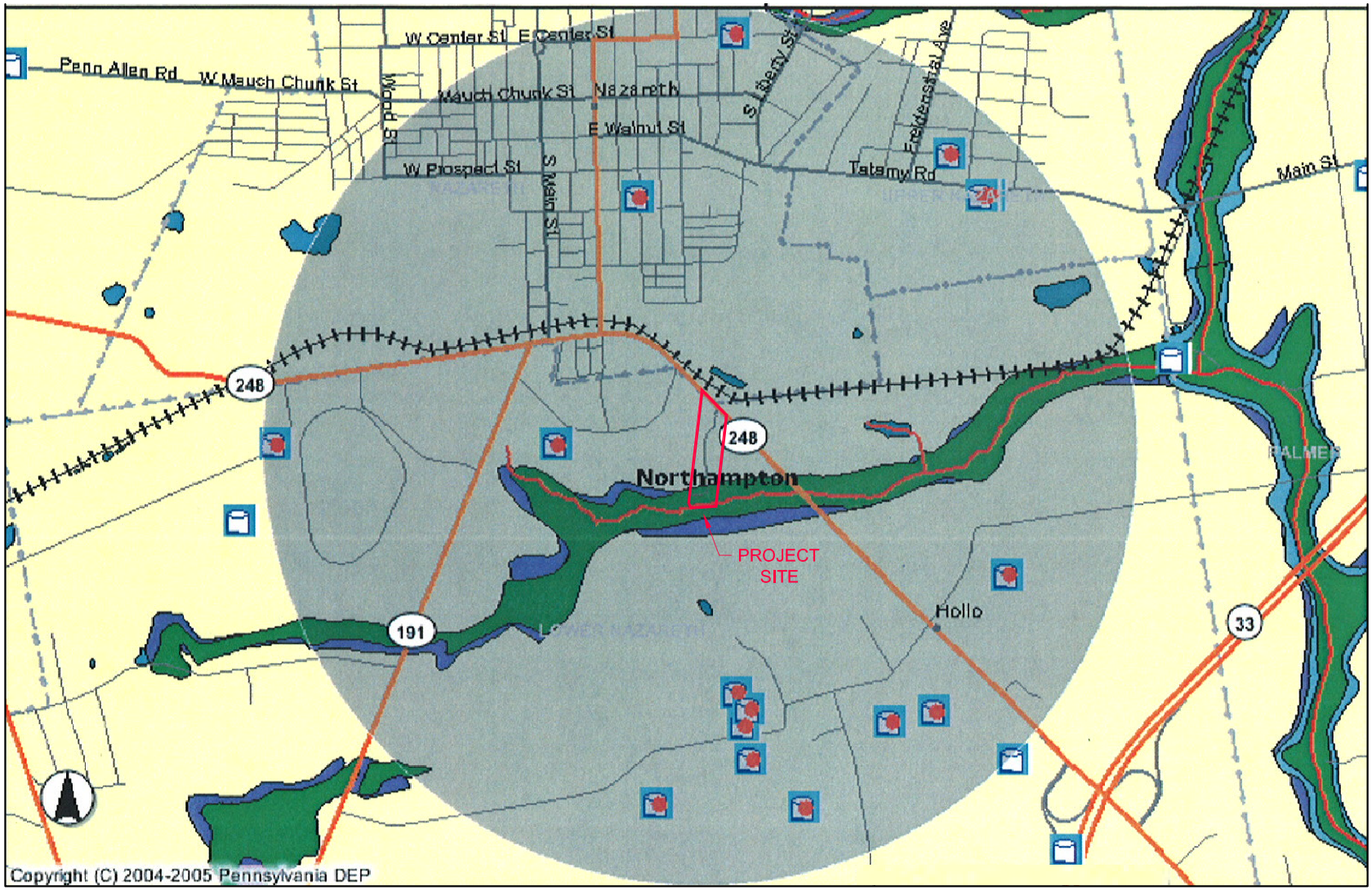
SCALE	1" = 50'	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/23/07	APPR. BY	RYW	FIG. NO.	8



LEGEND

- STREAMS
- FEMA 100 YEAR FLOODPLAIN
- FLOODPLAINS STATEWIDE
- FEMA 500 YEAR FLOODPLAIN
- 1 MILE RADIUS BUFFER
- NHD WATERBODIES
- PAGWIS WELL WATER INVENTORY
- PAGWIS WELL WATER INVENTORY (LOCATED WITHIN 1 MILE RADIUS)
- 248 STATE HIGHWAY

N

NOTE: THIS DRAWING IS NOT TO SCALE

TITLE	WELLS LOCATED WITHIN ONE MILE OF VENEZIA FACILITY
PROJECT	VENEZIA LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
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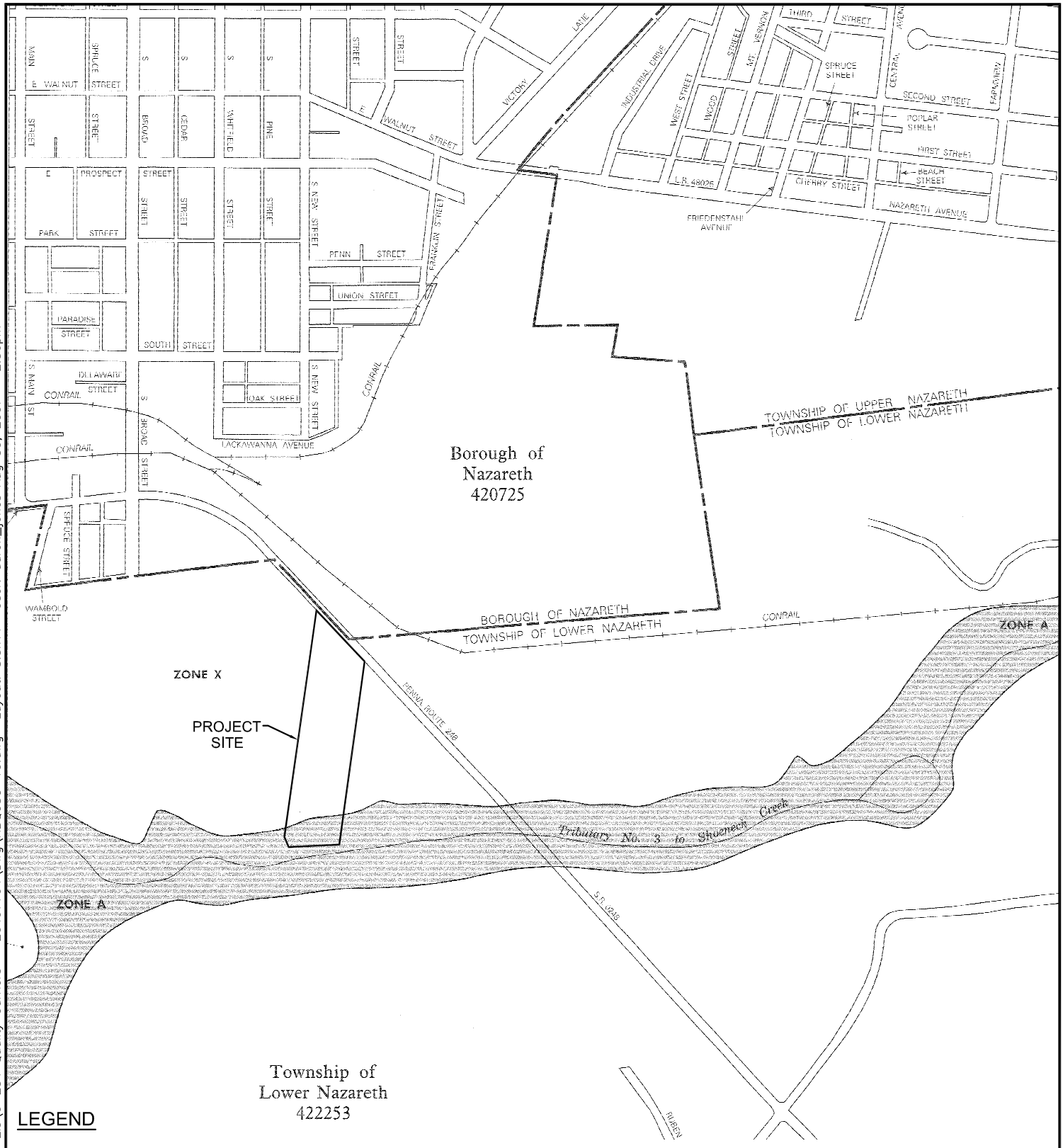
SCALE	DWN. BY	JOB NO.
N.T.S.	AWJ	20497794
DATE	APPR. BY	FIG. NO.
7/23/07	RYW	9

File: L:\GTAC PROJECTS\RCRA EIs\2007 EIs\0-254 Quality Carriers - 20497794\Dwg\HBQCSC-05.dwg Layout: 8.5x11 User: aaron_jones Aug 30, 2007 - 2:54pm



LEGEND

= SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100 YEAR FLOOD

ZONE A = NO BASE FLOOD ELEVATIONS DETERMINED

0 500 1000

SCALE IN FEET

N

NOTE: A portion of FEMA Flood Insurance Rate Map, Map Number 42095C0256 D, Panel 256,Northampton County, Pennsylvania, April 6, 2001.

TITLE

FEMA FLOODPLAIN MAP

PROJECT

VENEZIA
LOWER NAZARETH TOWNSHIP, NORTHAMPTON COUNTY, PA

URS
4507 NORTH FRONT STREET, SUITE 200
HARRISBURG, PENNSYLVANIA 17110
(717) 635-7901 FAX (717) 635-7902
www.urscorp.com

SCALE	1" = 500'	DWN. BY	AWJ	JOB NO.	20497794
DATE	7/23/07	APPR. BY	RYW	FIG. NO.	10

File: L:\GTAC PROJECTS\RCRA Els\2007 Els\0-254 Quality Carriers - 20497794\Dwg\HBQCSC-10.dwg Layout: 8.5x11 User: aaron_jones Aug 30, 2007 - 2:56pm

APPENDIX A

INVENTORY OF DOCUMENTATION

APPENDIX A

INVENTORY OF DOCUMENTATION
Venezia
(Quality Carriers, Inc.
Chemical Leaman Tank Lines, Inc.; Leaman Chemical)
Nazareth, PA 18064

1. ***July 11, 1980:*** USEPA Description of Hazardous Waste – USEPA files
2. ***August, 1980:*** Photographs of facility – USEPA files
3. ***August 1, 1980:*** USEPA Notification of Hazardous Waste Activity; first notification – USEPA files
4. ***September, 1980:*** Source of Waste Generation – USEPA files
5. ***October 17, 1980:*** USEPA Hazardous Waste Permit Application (signed November 18, 1980) – USEPA files
6. ***November 18, 1980:*** USEPA General Information of Consolidated Permits Program – USEPA files
7. ***January 14, 1981:*** USEPA Acknowledgement of Application for a Hazardous Waste Permit – USEPA files
8. ***June 1, 1981:*** Hazardous Waste Inspection Report – PADEP files
9. ***June 8, 1981:*** EPA Notification of Hazardous Waste Site form completed by CLTL – USEPA files
10. ***August 13, 1981:*** USEPA Notification of Conditions of Operations during Interim Status (Part A Hazardous Waste Permit Application Information)– USEPA files
11. ***November 23, 1981:*** Plot Plan for Chemical Leaman Corp. – PADEP files
12. ***February 26, 1982:*** Corrected ER-SWM-55A forms – PADEP files
13. ***September 9, 1982:*** PADEP Hazardous Waste Inspection Report – PADEP files
14. ***January 13, 1983:*** PADEP Hazardous Waste Inspection Report – PADEP files
15. ***January 26, 1983:*** PADEP Hazardous Waste Inspection Report – PADEP files
16. ***February 22, 1983*****:** Inspection Reports/Compliance Monitoring violation for Part B Application for Hazardous Waste Management Facility Permit– USEPA files
17. ***February 23,1983:*** Request for Part B application for Hazardous Waste Management Facility Permit - USEPA files
18. ***June 3, 1983:*** Chemical Leaman request for deletion from the storage of hazardous waste for periods in excess of 90 days - PADEP and USEPA files
19. ***June 23, 1983:*** Hazardous Waste Inspection Report – PADEP files
20. ***July 7, 1983:*** Request for withdrawal from Interim Status – USEPA files
21. ***July 25, 1983:*** USEPA letter requesting confirmation that facility is withdrawing their Part A status – USEPA files
22. ***October 19, 1983:*** Part B withdrawal confirmation; generator only – USEPA files
23. ***November 1, 1983:*** USEPA letter acknowledging Part A Withdrawal and requesting that facility be put on Part B call-in list – USEPA files
24. ***November 9, 1983:*** Notice of Violation for non-submittal of Part B Application for Hazardous Waste Management Facility Permit– USEPA and PADEP files
25. ***December 15, 1983:*** Letter from USEPA to CLTL regarding termination of interim status – USEPA files
26. ***January 6, 1984:*** Letter from Chemical Leaman Tank Lines, Inc. requesting to withdraw from submitting the Part B Application – USEPA files
27. ***February 14, 1984:*** PADEP Hazardous Waste Inspection Report – PADEP files
28. ***March 13, 1984:*** Letter from PADER to Chemical Leaman Tank Lines, Inc. granting withdrawal from the Part B Application process – USEPA files

29. ***August 2, :*** EPA Potential Hazardous Waste Site Preliminary Assessment form and PADEP Field Trip Summary Report – USEPA files
30. ***August 9, 1985:*** PADEP letter with 8/2/85 Inspection – EPA and PADEP files
31. ***September 13, 1985:*** Chemical Leaman letter addressing 8/9/85 PADEP letter – EPA and PADEP files
32. ***October 1, 1985;*** CLTL letter to PADEP containing rinsewater chemistry – EPA files
33. ***October 7, 1985:*** Preliminary Assessment Report prepared by the PADEP – PADEP files
34. ***February 4, 1986:*** PADER Notice of Violation for manifests – PADEP files
35. ***February 18, 1986:*** CLTL letter responding to PADER letter – PADEP files
36. ***July 15, 1986:*** Technical Directive Document (TDD) sent from NUS to USEPA – USEPA files
37. ***July 25, 1986:*** PADER letter regarding 7/24/86 inspection – PADEP files
38. ***July 29, 1986:*** United Steel Corporation letter with manifest violations – PADEP files
39. ***July 30, 1986:*** CLTL letter of response to 7/25/86 letter – PADEP files
40. ***August 22, 1986:*** Non-Sampling Site Reconnaissance Summary Report for USEPA – PADEP files
41. ***October 9, 1986:*** EPA Notification of Hazardous Waste Activity; Permitted Transportation, Storage or Disposal(TSD) facility – USEPA files
42. ***October 16, 1986:*** PADEP Manifest violations – PADEP files
43. ***April 29, 1987:*** Manifest violation – PADEP files
44. ***May 25, 1989:*** Letter of complaint to CLTL – PADEP files
45. ***June 7, 1989:*** PADEP letter regarding complaint – PADEP files
46. ***June 12, 1989:*** Letter of complaint to CLTL – PADEP files
47. ***July 5, 1989:*** CLTL response to a complaint investigation (6/7/89) – PADEP files
48. ***July 27, 1989:*** Morning Call newspaper article – PADEP files
49. ***July 28, 1989:*** Morning Call newspaper article – PADEP files
50. ***August 29, 1989:*** Letter from CLTL with analytical results for a water sample – PADEP files
51. ***April 4, 1990:*** Registration of Storage Tanks – PADEP files
52. ***April 9, 1990:*** PADEP letter acknowledging receipt of tank registration – PADEP files
53. ***May 16, 1990:*** CLTL letter acknowledging receipt of tank notification to PADEP – PADEP files
54. ***December 7, 1990:*** PADER Civil Penalty Assessment – PADEP files
55. ***December 17, 1990:*** Commonwealth of PA Pre-hearing Memorandum of Appellee for Civil Penalty Assessment – PADEP files
56. ***February 25, 1991:*** Cover letter for Appellant's Interrogatories and Request for Production of Documents – PADEP files
57. ***August 28, 1991:*** PA Environmental Hearing Board letter with settlement approval and appeal dismissal – PADEP files
58. ***September 13, 1991:*** PA Environmental Hearing Board Service of Papers – PADEP files
59. ***November 20, 1991:*** Office of Chief Counsel Consent Adjudication and Order – PADEP files
60. ***December 12, 1991:*** PA Consent Adjudication and Order – PADEP files
61. ***December 31, 1991:*** PA Environmental Hearing Board Order indicating receipt of 12/16/91 letter indicating agreement to the settlement – PADEP files
62. ***January 24, 1992:*** Payment to the Solid Waste Abatement Fund – PADEP files
63. ***August 5, 1992:*** PADER Hazardous Waste Inspection Report – PADEP files
64. ***November 23, 1993:*** TASD Facility Manifest for spent Sulfuric Acid – PADEP files
65. ***August 14, 1995:*** PADER UST Closure Notification Form – PADEP files
66. ***August 22, 1995:*** PADER letter requesting registration of the seven UST's to be removed – PADEP files

67. ***September 29, 1995:*** PADEP Notification of a Reportable Release during UST removal – PADEP files
68. ***October 4, 1995:*** PADEP Notice of Contamination – PADEP files
69. ***October 11, 1995:*** Closure Report for two regulated waste oil USTs by Montgomery Watson – PADEP files
70. ***October 23, 1995:*** Closure Report for two non-regulated fuel oil USTs by Montgomery Watson – PADEP files
71. ***October 30, 1995:*** Cover letter to PADEP from EnviroPower with Closure Information for three regulated diesel fuel USTs by R.W. Wright (no text) – PADEP files
72. ***October 30, 1995:*** Storage Tank Registration – PADEP files
73. ***November 28, 1995:*** PADEP letter to Enviropower regarding Act16 and registration of storage tanks – PADEP files
74. ***December 1, 1995:*** Storage Tank Data System Facility Screen – PADEP files
75. ***December 6, 1995:*** Leaking Underground Storage Tank Closure Information - PADEP files
76. ***December 11, 1995:*** PADEP letter with review comments on the Closure Report – PADEP files
77. ***January 5, 1996:*** Letter to PADEP addressing comments on the Closure Report – PADEP files
78. ***January 9, 1996:*** Site Characterization Work Plan – PADEP files
79. ***March 20, 1996:*** Bioremediation Treatment System Design for Petroleum Hydrocarbon-Impacted Soil report by RE Wright – PADEP files
80. ***March 21, 1996:*** PADEP letter with comments on the Site Characterization Work Plan – PADEP files
81. ***March 22, 1996:*** Leaking Underground Storage Tank Closure Information – PADEP files
82. ***March 29, 1996:*** Letter to PADEP addressing comments on the Site Characterization Work Plan – PADEP files
83. ***April 24, 1996:*** PADEP letter commenting on 3/29/96 letter – PADEP files
84. ***August 22, 1996:*** Site Characterization Report prepared by R.E. Wright Environmental – PADEP files
85. ***September 19, 1996:*** Soil Bioremediation First Quarterly Report – PADEP files
86. ***November 4, 1996:*** Site Characterization Report – PADEP files
87. ***February 28, 1997:*** Soil Bioremediation Second Quarterly Monitoring and Closure Report – PADEP files
88. ***April 8, 1997:*** PADEP letter with comments on the Site Characterization Report and the Soil Remediation Report – PADEP files
89. ***April 16, 1997:*** Letter to PADEP regarding soil biopiles – PADEP files
90. ***April 23, 1997:*** UST Closure/Remediation for LUST Closure – PADEP files
91. ***October 7, 1997:*** Letter to PADEP with Additional Site Characterization Work Plan – PADEP files
92. ***October 16, 1997:*** PADEP letter with comments on the Additional Site Characterization Activities Report – PADEP files
93. ***March 10, 1998:*** R.E. Wright letter to EnviroPower addressing PADEP comments – PADEP files
94. ***March 24, 1998:*** Groundwater Quality Sampling Results – PADEP files
95. ***July 22, 1999:*** Quality Distribution letter with Subsequent Generation Notification of Regulated Waste Activity – EPA files
96. ***November 19, 1999:*** Groundwater Quality Sampling Results – PADEP files
97. ***December 30, 1999:*** PADEP letter with comments on the Groundwater Quarterly Sampling results – PADEP files
98. ***April 25, 2000:*** Quarterly Groundwater Monitoring Results – PADEP files
99. ***January 29, 2001:*** Groundwater Quarterly Sampling Results – PADEP files

100. ***February 21, 2001:*** Letter to PADEP transmitting final quarterly groundwater monitoring report – PADEP files

101. ***March 12, 2001:*** PADEP letter requesting additional information for the Quarterly Sampling Report – PADEP files

102. ***March 26, 2001:*** PADEP letter requesting additional information for the Quarterly Sampling Report – PADEP files

103. ***March 29, 2001:*** Letter to PADEP addressing comments in their 3/12/01 and 3/26/01 letters - PADEP files

APPENDIX B

PHOTOGRAPHIC LOG

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
01	06/12/07

Direction Photo Taken:
Northwest

Description:
Entrance to the Venezia facility

Photo No:	Date:
02	06/12/07

Direction Photo Taken:
East

Description:
Northeast corner of the Terminal building where the offices were.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
03	06/12/07

Direction Photo Taken:
South

Description:
Central portion of Terminal building as viewed from Route 248.

Photo No:	Date:
04	06/12/07

Direction Photo Taken:
West

Description:
West end of the Terminal building as viewed from Route 248.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	Route 248 South Nazareth, Pennsylvania	20497794

Photo No:	Date:
05	06/12/07

Direction Photo Taken:
South

Description:
Fiberglass vessels on concrete pad on the west side of the Terminal building.

Photo No:	Date:
06	06/12/07

Direction Photo Taken:
East

Description:
Drain area on the concrete pad. The concrete pad is next to the Terminal building on the west side.

.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
07	06/12/07

Direction Photo Taken:
East

Description:
Drain in concrete pad on the west side of the Terminal building.

Photo No:	Date:
08	06/12/07

Direction Photo Taken:
North

Description:
West end of the Terminal building. Picture is taken from the rear of the building facing the north.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
09	06/12/07

Direction Photo Taken:
North

Description:
East end of the Terminal building. Picture is taken from the rear of the building facing north.

Photo No:	Date:
10	06/12/07

Direction Photo Taken:
West

Description:
Rear section of east end of the Terminal building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
11	06/12/07

Direction Photo Taken:
Northwest

Description:
Front section of east end of Terminal building.

Photo No:	Date:
12	06/12/07

Direction Photo Taken:
Southeast

Description:
Cover to septic holding tank (center of picture) and cap for groundwater production well (lower left of picture), located in back of the Terminal building on the east end.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
13	06/12/07

Direction Photo Taken:
East

Description:
Manhole cover in back of the Terminal building located behind the entrance to the west bay door.

Photo No:	Date:
14	06/12/07

Direction Photo Taken:
Northeast

Description:
Manhole cover in back of the Terminal building located on the west side of the driveway to the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
15	06/12/07

Direction Photo Taken:
Southeast

Description:
Line-of-site photograph of the two manhole covers taken away from the rear of the Terminal building toward the tree line.

Photo No:	Date:
16	06/12/07

Direction Photo Taken:
West

Description:
Concrete sealed drains in Terminal building leading to the undercarriage pit in the distance.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road.Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
17	06/12/07

Direction Photo Taken:
South

Description:
Sump in the undercarriage pit in the Terminal building

Photo No:	Date:
18	06/12/07

Direction Photo Taken:
West

Description:
Oil line in the undercarriage pit in the Terminal building

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
19	06/12/07

Direction Photo Taken:
East

Description:
Compressor unit in Maintenance room located in the northwest corner of the Terminal building

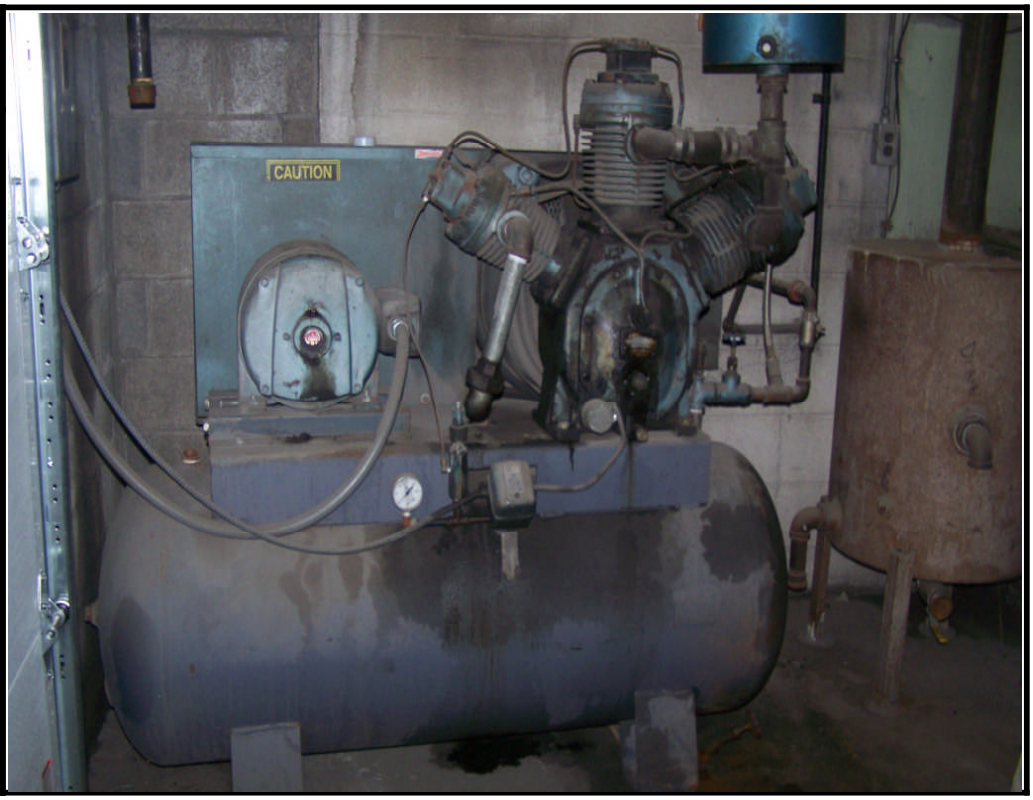


Photo No:	Date:
20	06/12/07

Direction Photo Taken:
Northeast

Description:
Old gas-fired boiler in Maintenance room located in the northwest corner of the Terminal building

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
21	06/12/07

Direction Photo Taken:
South

Description:
Gas manifold on old heating system located in the Maintenance room of the Terminal building.

Photo No:	Date:
22	06/12/07

Direction Photo Taken:
West

Description:
Previous heating system for the Terminal building located in the Maintenance Room.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
23	06/12/07

Direction Photo Taken:
Northwest

Description:
Oil staining, concrete pitting and sealed floor drain grate in west wash bay of the Terminal building.

Photo No:	Date:
24	06/12/07

Direction Photo Taken:
West

Description:
Piping system along west wall of the west wash bay in the Terminal building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
25	06/12/07

Direction Photo Taken:
South

Description:
Driveway and parking area between the Terminal building and the Maintenance building approximately where the former lagoons were located.

Photo No:	Date:
26	06/12/07

Direction Photo Taken:
South

Description:
Front of the Maintenance building located on the southern portion of the property.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
27	06/12/07

Direction Photo Taken:
Southwest

Description:
Diesel fueling tank located on the west side of the Maintenance building.

Photo No:	Date:
28	06/12/07

Direction Photo Taken:
Southeast

Description:
Diesel fueling tank located on the west side of the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
29	06/12/07

Direction Photo Taken:
North

Description:
Diesel fueling tank located west of the Maintenance building.

Photo No:	Date:
30	06/12/07

Direction Photo Taken:
Northeast

Description:
Diesel fueling pad located west of the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
31	06/12/07

Direction Photo Taken:
North

Description:
Dumpster located east of the diesel fueling pad behind the Maintenance building.

Photo No:	Date:
32	06/12/07

Direction Photo Taken:
East

Description:
Covers of septic holding tanks located behind the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
33	06/12/07

Direction Photo Taken:
North

Description:
Southwest corner of the Maintenance building.

Photo No:	Date:
34	06/12/07

Direction Photo Taken:
Northeast

Description:
Southeast corner of the maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
35	06/12/07

Direction Photo Taken:
Southwest

Description:
Southwest back corner of the property.

Photo No:	Date:
36	06/12/07

Direction Photo Taken:
Southeast

Description:
Southeast back corner of the property with a propane tank in the background.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
37	06/12/07

Direction Photo Taken:
South

Description:
Northeast front corner of the Maintenance building.

Photo No:	Date:
38	06/12/07

Direction Photo Taken:
Southwest

Description:
Undercarriage pit area located in the west bay of the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
39	06/12/07

Direction Photo Taken:
Southwest

Description:
Oil line from undercarriage pit area into the oil storage room in the Maintenance building.

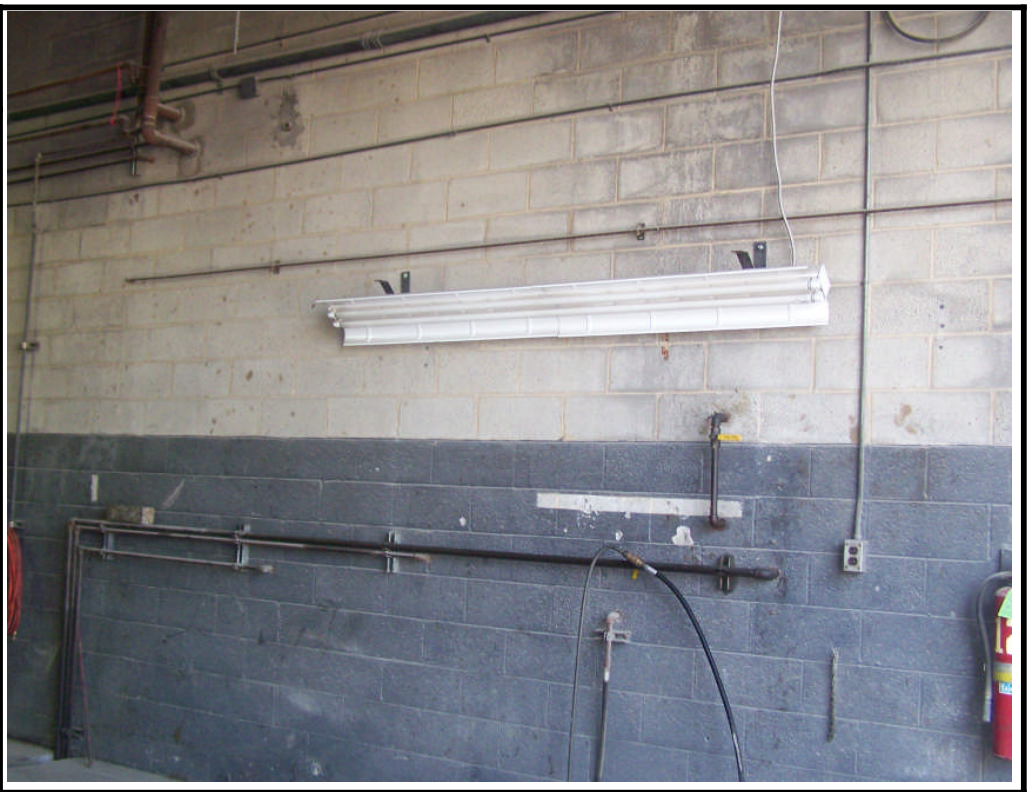


Photo No:	Date:
40	06/12/07

Direction Photo Taken:
West

Description:
Waste oil storage tank in the oil storage room of the Maintenance building.

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.:
PADEP	3987 Easton-Nazareth Road/Route 248 South Nazareth, Pennsylvania 18064	20497794

Photo No:	Date:
41	06/12/07

Direction Photo Taken:
West

Description:
New oil storage tank located in the Oil Storage Room of the Maintenance building.

Photo No:	Date:
42	06/12/07

Direction Photo Taken:
Northeast

Description:
Gear lubricant stored in the oil storage room of the Maintenance building.

APPENDIX C

EPA CHECKLISTS FOR:

1. **USE/REUSE ASSESSMENT**
2. **MIGRATION OF CONTAMINATED GROUNDWATER UNDER CONTROL**
3. **CURRENT HUMAN EXPOSURES UNDER CONTROL**
4. **EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY**

EPA Region 3
Hazardous Sites
Use/Reuse Assessment Form

Instructions: EPA project managers or state agencies overseeing hazardous site cleanups should complete this form at least annually, or whenever a new use occurs or is anticipated to occur at the site using information readily available'.

A. General Information

1. Site name: Venezia (Formerly Quality Carriers and Chemical Leaman Tank Lines, Inc.)

2. Type of Site:

☒ **RCRA Corrective Action** ☐ **Superfund NPL** ☐ **Superfund Removal**

☐ **Superfund Alternative Site** ☐ **BRAC** ☐ **Superfund NPL/Federal Facility**

3. EPA Site ID #: PAD 099427908

4. Site location (city, state): Nazareth, PA

5. Types of Historical Uses at the site: Trucking terminal

(e.g., chemical manufacturing, landfill, steel mill, army training base, shipyard, metal plating facility, illegal dumping, etc.)

B. Contact Information

1. Remedial Project Manager Name: Tracey L. McGurk, Solid Waste Supervisor, Pennsylvania Department of Environmental Protection

2. **Phone Number:** (570)826-2076

3. Today's Date: 9/219/07

C. Current Land Use and Types of Use -

On the following table, please indicate all types of **surficial land use** occurring at the site, in acres, if known. If exact acres are not available, use best professional judgment in estimating acres. The sum of acres provided in the Current Land Use column should equal the Total Site Acres. Refer to the definitions provided in Attachment A for determining Current Land Use and Type of Use. When determining the Type of Use, the predominant activity, function or likely exposures scenario should apply. For example, a privately-owned golf course should be categorized as recreational, not commercial, because the predominant activity is recreational. In the Inactive Waste Disposal column, the acres are a subset of the acres recorded under Current Land Use.

[1]To ensure that the requirements for OMB approval under the Paperwork Reduction Act do not apply to this form, please provide your responses to this form based on your knowledge, the knowledge of individuals in your agency, information made available to your agency in the course of implementing site cleanup, or publicly available information (e.g. websites). To prevent potential problems with the Paperwork Reduction Act, EPA project managers and state agencies should not seek specific information from private entities in direct response to this form.

Total Site Acres (10)acres

Current Land Use (acres)	Type of Use (acres)	Cleanup Status[2] (Check one box only for each Type of Use)	Inactive Waste Disposal Area[3] (acres)	Describe the Current Use
Continued Use (10) ☐Restored Reuse (Superfund sites only)	Agricultural ( ) Commercial ( ) Enhanced Ecological ( ) Industrial (10) Public Services ( ) Recreational ( ) Residential ( ) Mixed Use (Check uses that apply) ( ) ☐Agr ☐Com ☐Eco ☐Ind ☐Pub ☐Rec ☐Res	☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☒ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D	(0.04)	Trucking terminal for concrete dust. Truck maintenance and refueling performed on site.
Reused ( )	Agricultural ( ) Commercial ( ) Enhanced Ecological ( ) Industrial ( ) Public Services ( ) Recreational ( ) Residential ( ) Mixed Use (Check uses that apply) ( ) ☐Agr ☐Com ☐Eco ☐Ind ☐Pub ☐Rec ☐Res	☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D	( )	
Planned Reuse ( )	Agricultural ( ) Commercial ( ) Enhanced Ecological ( ) Industrial ( ) Public Services ( ) Recreational ( ) Residential ( ) Mixed Use (Check uses that apply) ( ) ☐Agr ☐Com ☐Eco ☐Ind ☐Pub ☐Rec ☐Res	☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D ☐ IN ☐ RS ☐ CC ☐ C/D	( )	
No Current Use/ Vacant ( )		☐ IN ☐ RS ☐ CC ☐ C/D (Superfund only) Is all or a portion of the site Ready for Reuse?[4] ( ) acres ready for residential use ( ) acres ready for non-residential use	( ) ☐ Reuse not recommended[5]. Provide acres and reason:	Interest in site reuse? ☐ Yes ☐ No Comments:

Unit Conversions

1 square foot = 0.000023 acre; 1 square meter = 0.0002471 acre; Or to convert to acres go to: www.digitaldutch.com/unitconverter/

[2]Cleanup status: Investigation (IN); Remedy Selected (RS); Construction Complete (CC); RCRA Complete or Superfund delisted or partial delisting (C/D).

[3]Portion of the site which was historically used for the disposal of solid or hazardous waste.

[4]Data will be entered in CERCLIS for tracking Superfund Revitalization GPRA performance measures.

[5]Indicate if reuse is not recommended or prohibited by the remedy. For example, reuse of a former landfill may not be recommended to ensure long-term protectiveness, or a remedy involving containment of low level radioactive contamination may specifically exclude reuse.

D. Tools Used to Support Use/Reuse - Check all that apply.

	EPA/State Activity	Comments
☐	No Agency Involvement	
☐	Expedited cleanup on all or a portion of the site	
☐	Provided site information for reuse (e.g. FOIA, e-mails)	To whom?
☐	Participated in telephone calls to discuss reuse	How many? With whom?
☐	Participated in meetings to discuss reuse	How many? With whom?
☒	Coordinated with another regulatory program (e.g. State)	Identify the program(s). Act 2/Act 32
☐	Integrated reuse plans into cleanup design	
☐	Issued Comfort Letter	
☐	Issued Prospective Purchaser Agreement (PPA) or (PLA)	
☐	Issued Ready for Reuse (RfR) determination	
☐	Provided facilitation services to help community plan reuse	
☐	Resolved a lien issue	
☐	Provided grant funding (e.g. TAG, Brownfields)	
☐	Re-evaluated site restrictions or institutional controls	
☐	Other: (e.g modified order)	

E. Benefits of Use/Reuse - If information is readily available, please check any known benefits associated with the use/reuse of the site and provide the source of that information.

	Benefit of Use/Reuse	Description/Source of Information
☐	No information available at this time	
☒	Permanent (new or retained) jobs on the site	# jobs, if known ( )
☐	Housing or residential units built	# housing units, if known ( )
☐	Reuse investment (redevelopment costs)	$
☐	Change in property value due to reuse	$
☒	Tax dollars generated from use or reuse	$
☐	Partnership(s) formed (federal, state, local, private, etc.)	
☐	Creation or preservation of open space	
☐	Sustainable reuse component: ☐ Green building design ☐ Energy efficient systems or alternative energy sources ☐ Native landscaping ☐ Historic preservation/reuse of infrastructure	
☐	Other (e.g., construction	

Attachment A: Definitions for Hazardous Sites Use/Reuse Assessment Form

Current Land Use Definitions

Continued Use - A site or portion of a site which is currently being used in the same general manner as it was when the site became contaminated. For example, continued use would be an appropriate description for a property where industrial operations resulted in the contamination and the property is still used as an operating industrial facility. The RCRA Program will count all acres of an active RCRA industrial facility as Continued Use, except for parcels specifically designated as Reused or Planned Reuse.

____ ***Restored Reuse*** *(Superfund sites only)* - Please indicate if the use of a property was temporarily halted during cleanup and the same use was resumed after the site was cleaned up. Check the ***Restored Reuse*** box.

Reused - A site or portion of a site where a new use, or uses, is occurring such that there has been a change in the type of use (e.g. industrial to commercial) or the property was vacant and now supports a specific use. This means that the developed site, or portion of the site, is "open" or actually being used by customers, visitors, employees, residents, etc.

Planned Reuse - A site or portion of a site where a plan for new use is in place. This could include conceptual plans, a contract with a developer, secured financing, approval by the local government, or the initiation of site redevelopment.

No Current Use - A site or portion of a site that is currently vacant or not being used in any identifiable manner. This could be because site investigation and cleanup are on-going, operations ceased or owner is in bankruptcy, or cleanup is complete but the site remains vacant.

Ready for Reuse *(Superfund sites only)*- Indicate, in acres, any land portion of the site that is *Ready for Reuse* and whether the area is suitable for either residential or non-residential reuse. *Ready for Reuse* may include land areas where investigation occurred and response actions were deemed unnecessary or where cleanup goals for the land have been attained. Refer to *"Guidance for Documenting and Reporting the Superfund Revitalization Performance Measures"* [OSWER 9202.1-26] for additional information on reporting *Ready for Reuse.*

Types of Use Definitions

Agricultural Use - Property used for agricultural purposes such as farmland for growing crops and pasture for livestock. Agricultural use can also encompass other activities such as orchards, agricultural research and development, and irrigating existing farmland.

Commercial Use - Property used for retail shops, grocery stores, offices, restaurants, and other businesses.

Enhanced Ecological Use - Property where **proactive** measures, including a conservation easement, have been implemented to create, restore, protect or enhance a habitat for terrestrial and/or aquatic plants and animals, such as wildlife sanctuaries, nature preserves, meadows, and wetlands.

Industrial Use - Property used for traditional light and heavy industrial uses such as processing and manufacturing products from raw materials, as well as fabrication, assembly, treatment, and packaging of finished products. Examples of industrial reuse sites include factories, power plants, warehouses, waste disposal sites, landfill operations, and salvage yards.

Mixed Use - Property where the multiple uses cannot be differentiated on the basis of acres. For example a condominium with retail shops on the ground floor and residential use on the upper floors would fall into this category. When selecting Mixed Use, indicate the different types of uses in the mixed use.

Public Service Use - Property which is being utilized by a local, state, or federal government agency or a non-profit group to serve citizens' needs. This can include transportation services such as rail lines and bus depots, libraries and schools, government offices, public infrastructure such as roads, bridges, utilities, or other services for the general public.

Recreational Use - Property which is being used for recreational activities such as sports facilities, golf courses, ball fields open space for hiking and picnicking and other opportunities for indoor and outdoor leisure activities.

Residential Use - Property which is being used for residential purposes including single-family homes, apartment complexes, and condominiums.

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Final 9/19/07

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name:	Venezia (formerly known as Quality Carrier and Chemical Lehman Trucking Company)
Facility Address:	3987 East-Nazareth Road, Route 248, Nazareth, PA 18064
Facility EPA ID #:	PAD 099427908

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

_____ If no – re-evaluate existing data, or

_____ If data are not available skip to #8 and enter "IN" (more information needed) status code

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Controls" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program, the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993 (GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., non aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be "contaminated"[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action anywhere at, or from, the facility?

_____	If yes – continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.
_____	If no – skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."
X	If unknown (for any media) – skip to #8 and enter "IN" status code.

Rationale and Reference(s): Data discussed in this section is presented in Table 3

Former Wastewater Lagoon Area: Two unlined lagoons were used at the Site from December 1965 through November 1973, to collect wastewater generated from the internal cleaning of tank trucks. These lagoons were constructed in the center of the property, approximately 400 feet behind the Terminal building. The lagoons measured 24 by 32 feet and 28 by 34 feet and were 2 and 3 feet deep, respectively. The two lagoons were interconnected by a 4 inch diameter pipe. The wastewater discharged to the lagoons consisted of rinse water from cleaning tank trailers and residual amounts of product which remained on the tank trailer walls. The products typically cleaned were petroleum oils, acids, synthetic latexes, and acrylates. The estimated volume of wastewater received by the lagoons was 200 to 300 gallons per day or three to five trucks per day. The only analysis of the wastewater (analyzed for pH, alkalinity, sulfate, specific conductance, total solids and suspended solids) was conducted in November 1971. The lagoon system was eliminated in November 1973 and was replaced with a poured-in-place concrete holding tank. Following complete construction of the holding tank, the lagoons were decommissioned by backfilling with roadbed-grade aggregate. Roadbed-grade aggregate covers the entire roadway and parking area on the Site. Visible evidence of these lagoons was not observed during the NUS Site reconnaissance on July 24, 1986, or by URS during the Site visit on June 12, 2007. No metals or organics sampling of the wastewater was conducted and no documentation indicating sludge or sediment samples were collected from the lagoons was located by URS in the USEPA or PADEP files. The impact these structures may have (past or present) on Site environmental media, including groundwater, is unknown.

Former UST Areas: Four 90 to 100 foot deep on Site monitoring wells were installed at PADEP's request in 1996 and 1997 to characterize groundwater in the former diesel fuel UST area located in the northeastern portion of the Site. Groundwater samples were collected up to seven times from these wells including the four consecutive quarters in 2000. Samples were analyzed for BTEX, naphthalene, cumene, phenanthrene, and fluorene. Detected concentrations were below the PADEP Residential and Non-Residential Used Aquifer MSCs for all compounds except benzene (MW-1, 12 mg/l on May 23, 1996 and MW-4, 23 ug/l on June 16, 1997) and naphthalene (MW-4, 125 mg/l on March 1, 2000). The groundwater gradient determined from water levels collected from MW-2, MW-3, and MW-4 on January 6, 1998 (MW-1 was dry) indicate flow to the north toward the quarry operations, located across Route 248. Based on recent correspondence between URS and PADEP, Act 2/Act 32 closure of the former diesel fuel UST area has not been granted because it is PADEP's opinion that additional data is required for proper characterization of the plume. Additionally, 855 cubic yards of biotreated soils (generated from UST closure activities) with total petroleum hydrocarbon (TPH) concentrations less than 500 mg/kg were "redistributed" on Site at an unknown location. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be an another source of contamination to Site groundwater.

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Summary: Groundwater is reportedly currently not used on Site though a supply well is present. On Site groundwater use is not deed restricted. There are six known domestic or industrial wells located within one-half mile of the Site, three of which are located at the quarry north of the Site across Route 248. Groundwater flow is presumably north to the quarry due to their dewatering operations. There are no known controls on off Site groundwater flow and no knowledge as to whether such controls are necessary based on information currently available.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[1] as defined by the monitoring locations designated at the time of this determination)?

_____ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2])

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[1] "Existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration [2] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate "level(s)," and if estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing. .

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

No rationale warranted.

[2] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be **"currently acceptable"** (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[3])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment[4] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be **"currently acceptable")** – skip to #8 and enter a "NO" status, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown – skip to 8 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[3] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[4] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_____ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

No rationale warranted.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

_____	YE – Yes, "Migration of contaminated Groundwater Under Control" has been verified.
_____	NO – Unacceptable migration of contaminated groundwater is observed or expected.
X	IN – More information is needed to make a determination. *This information is based on information collected by URS from PADEP and USEPA files and discussions with representatives of PADEP familiar with the site.
_____	

Completed by: (signature) _____ Date _____

(print) _____

(title) _____

Supervisor: (signature) _____ Date _____

(print) _____

(title) _____

(EPA Region or State) _____

Locations where References may be found:

A list of all reference documents is appended to the EI Report. Copies of these reference documents can be found at USEPA's Region III office in Philadelphia or PADEP's Northeast Regional office in Wilkes Barre, PA.

Contact telephone and e-mail numbers:

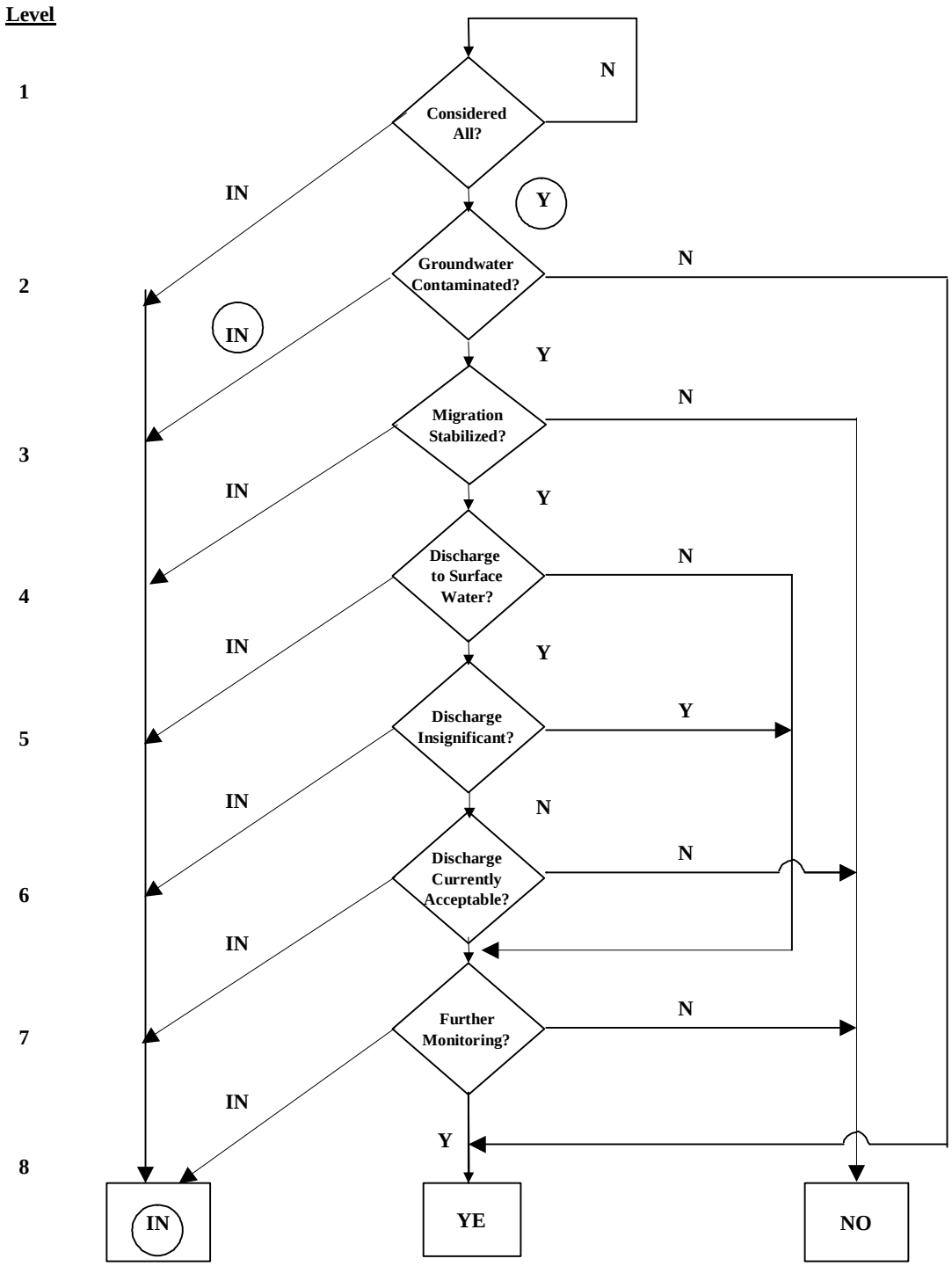
_____

_____

_____

Facility Name: Venezia
EPA ID #: PAD099427908
Location: 3987 Easton-Nazareth Road, Nazareth, PA 18064

MIGRATION OF CONTAMINATED GROUNDWATER UNDER CONTROL (CA 750)



DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Final 9/19/2007

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name:	Venezia (Formerly Quality Carriers and Chemical Lehman Truck Line)
Facility Address:	3987 Easton-Nazareth Road (Route 248), Nazareth, PA 18064
Facility EPA ID #:	PAD 099427908

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X	If yes – check here and continue with #2 below.
	If no – re-evaluate existing data, or
	If data are not available skip to #6 and enter "IN" (more information needed) status code

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Controls" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program, the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993 (GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale/Key Contaminants
Groundwater			X	Limited sampling conducted in 1996, 1997, 1998 and 2000 for fuel cont.
Air (indoors)[2]			X	See rationale below; based on limited soils and groundwater data with 1 caveat.
Surface Soil (e.g., <2 ft)			X	See rationale below.
Surface Water			X	See rationale below.
Sediment		X		See rationale below.
Subsurface Soil (e.g., >2 ft)			X	See rationale below.
Air (outdoors)		X		See rationale below.

_____ If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient support documentation demonstrating that these "levels" are not exceeded.

_____ If yes (for any media) – continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

X If unknown (for any media) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

1. Groundwater: Data discussed in this section are presented on Table 3 of the EI Report.

Former Wastewater Lagoon Area: Two unlined lagoons were used at the Site from December 1965 through November 1973, to collect wastewater generated from the internal cleaning of tank trucks. These lagoons were constructed in the center of the property, approximately 400 feet behind the Terminal building. The lagoons measured 24 by 32 feet and 28 by 34 feet and were 2 and 3 feet deep, respectively. The two lagoons were interconnected by a 4 inch diameter pipe. The wastewater discharged to the lagoons consisted of rinse water from cleaning tank trailers and residual amounts of product which remained on the tank trailer walls. The products typically cleaned were petroleum oils, acids, synthetic latexes, and acrylates. The estimated volume of wastewater received by the lagoons was 200 to 300 gallons per day or three to five trucks per day. The only analysis of the wastewater (analyzed for pH, alkalinity, sulfate, specific conductance, total solids and suspended solids) was conducted in November 1971. The lagoon system was eliminated in November 1973 and was replaced with a poured-in-place concrete holding tank. Following complete construction of the holding tank, the lagoons were decommissioned by backfilling with roadbed-grade aggregate. Roadbed-grade aggregate covers the entire roadway and parking area on the Site. Visible evidence of these lagoons was not observed during the NUS Site reconnaissance on July 24, 1986, or by URS during the Site. No metals or organics sampling of the wastewater was conducted and no

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

documentation indicating sludge or sediment samples were collected from the lagoons was located by URS in the USEPA or PADEP files. The impact these structures may have (past or present) on Site environmental media, including groundwater, is unknown.

Former UST Areas: Four 90 to 100 foot deep on Site monitoring wells were installed at PADEP's request in 1996 and 1997 to characterize groundwater in the former diesel fuel UST area located in the northeastern portion of the Site (see **Figure 8** of the EI Report). Groundwater samples were collected up to seven times from these wells including the four consecutive quarters in 2000. Samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, cumene, phenanthrene, and fluorene. Detected concentrations were below the PADEP Residential and Non-Residential Used Aquifer MSCs for all compounds except benzene (MW-1, 12 mg/l on May 23, 1996 and MW-4, 23 ug/l on June 16, 1997) and naphthalene (MW-4, 125 mg/l on March 1, 2000). During the investigation, samples collected from MW-2, MW-3, and a 200 foot deep on Site supply well had no detectable concentrations of any of the compounds analyzed. The groundwater gradient determined from water levels collected from MW-2, MW-3, and MW-4 on January 6, 1998 (MW-1 was dry) indicate flow to the north toward the quarry operations, located across Route 248. Based on recent correspondence between URS and PADEP, Act 2/Act 32 closure of the former diesel fuel UST area has not been granted because it is PADEP's opinion that additional data is required for proper characterization of the plume. Additionally, 855 cubic yards of biotreated soils (generated from UST closure activities) with total petroleum hydrocarbon (TPH) concentrations less than 500 mg/kg were "redistributed" on Site at an unknown location. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be an another source of contamination to Site groundwater.

Summary: Groundwater is reportedly currently not used on Site though a supply well is present. On Site groundwater use is not deed restricted. There are six known domestic or industrial wells located within one-half mile of the Site, three of which are located at the quarry north of the Site across Route 248. Groundwater flow is presumably north to the quarry due to their dewatering operations. There are no known controls on off Site groundwater flow and no knowledge as to whether such controls are necessary based on information currently available.

2. Indoor Air: Data discussed in this section are presented on Table 3 of the EI Report.

Former Wastewater Lagoon Area: There was historically no organics sampling of the internal tank washing wastewater stored in the former on Site unlined lagoons and there is no documentation indicating that sludge or sediment samples were collected from these lagoons prior to their closure in 1973. Additionally, there has been no investigation to date of Site groundwater which has included the breadth of consituents that would be necessary to evaluate possible lagoon-related impacts. Groundwater present within 100 feet (the radius specified by USEPA and PADEP for consideration of the vapor intrusion pathway) of current buildings may be impacted by the former lagoons, thus necessitating subsequent evaluation of the potential impacts to indoor air via vapor intrusion. Also, future construction in the former lagoon area, though not currently planned, could place a structure within 100 feet of potentially-contaminated former lagoon soils, another possible vapor source.

Former UST Areas: Seven USTs were removed from the Site in September and October 1995. The tanks consisted of two 6,000 gallon heating oil tanks, two used waste oil tanks (550 gallon and 1000 gallons each), and three 4,000 gallon diesel fuel tanks. Soil samples were collected as part of the tank removal process and were analyzed TPH and lead. Elevated TPH values resulted in overexcavtion at the majority of the tank locations. Effectiveness of the overexcavation was verified via additional TPH sampling at all locations except the diesel fuel UST area. Approximately 300 cubic yards of excavated soil were reused on Site as backfill in the diesel fuel UST excavation following "acceptable" TPH results of the untreated stockpile (TPH less than 500 mg/kg for a release greater than one year old, based on the limit prescribed in PADEP's 1993 Tank Closure Requirements Document). As discussed previously (Item 1 – Groundwater Rationale), the remaining 855 cubic yards was biotreated on Site in 1996 and were shown to have post-treatment TPH results less than 500 mg/kg, at which time the soils were "redistributed" on Site.

Site assessment information submitted in October 1995, with the PADEP UST Closure Report Forms indicated that obvious contamination was observed during soil excavation for the diesel fuel tanks and that contamination was not localized. Therefore, at PADEP's request, the groundwater investigation program discussed above under Item 1 (Groundwater Rationale) was implemented. To evaluate potential risks to indoor air quality at the Site, URS compared the groundwater sample results to current USEPA-PA default residential volatilization to indoor air screening values (see **Table 3** of the EI

Report) as published in PADEP's Guidance "Section IV.A.4 - Vapor Intrusion into Buildings from Groundwater and Soil Under the Act 2 Statewide Health Standard", effective January 24, 2004. The PADEP default screening values were derived using the USEPA Johnson & Ettinger model (J&E) with the default assumptions that no separate phase liquid is present, a minimum of five feet of separation distance exists between contamination sources and occupiable structures, soils are not sand or gravel, and no preferential flow pathways are present for the vapor to travel. Comparison of the available diesel fuel area groundwater data indicates no exceedances of the default indoor air criteria referenced above. However, there is insufficient information to adequately evaluate probable impacts to indoor air from the former USTs for the following reasons:

- While MW-1 and MW-2 are within the 100 foot radius of the Terminal building (the radius specified by USEPA and PADEP for consideration of the vapor intrusion pathway), limited analytical data exists for these wells. For MW-1 only one sample out of four consecutive quarters was collected due to lack of water in the well and only three total samples out of seven events were able to be collected due to lack of water in the well. MW-2 samples were collected four out of seven times due to lack of water in the well.

- There is no soils data from the tank grave areas for individual organic constituents, which is of particular concern in the former diesel fuel UST area (USTs 001 through 003), which is located within 100 feet of existing occupiable buildings. Additionally the TPH concentrations in the former diesel fuel UST area were quite high (up to 6,700 mg/kg). Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a vapor source to current or future structures at the Site.

- Individual organic constituent concentrations for the 1,155 cubic yards of soils excavated from the UST areas in September and October 1995 are unknown. These soils have been re-used on Site (as backfill in the former diesel fuel UST area and "redistributed" on Site) following analysis results yielding TPH concentrations less than 500 mg/kg. The "redistribution" area is unknown. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a vapor source to current or future structures at the Site.

Summary: There are currently no controls on the indoor air pathway at the Site. It is unknown whether such controls are needed to mitigate the soil vapor/groundwater-to-indoor air pathway because the data currently available for the Site is insufficient to determine if the pathway is complete.

There are known areas of UST-related contamination located within 100 feet of currently present occupiable structures, however available data to characterize the contamination is limited [i.e. minimal rounds of groundwater data in MW-1 and MW-2 and lack of analytical data for individual organic constituents in the tank grave soils and redistributed excavated (treated and untreated) soils]. Additionally, there is no soils or groundwater data for the former lagoon area. Groundwater data that is available from MW-1 and MW-2 for diesel fuel contaminants indicates that the pathway is incomplete.

Further investigation of Site soils and groundwater is warranted to determine if the vapor intrusion to indoor air pathway is complete and, if so, to dictate possible implementation of controls such as deed restrictions on future construction or use of vapor barriers in the lagoon area or engineering controls for existing buildings.

3. Surface Soils (0-2 feet):

The collection of soil samples during the UST closure activities conducted in 1995 appears to be the only soil sampling that has occurred on Site. These samples were collected from depths ranging from 2 to 21 feet bgs (subsurface samples). A discussion of these samples is presented in Item 6 (Subsurface Soil Rationale) below. URS located no documentation of surface soil sampling on Site.

Wastewater held in the former unlined lagoons, which had a maximum depth of three feet below grade, could have resulted in surface soil contamination laterally outward from the lagoon sidewalls. As discussed previously (Item 2 – Indoor Air Rationale), approximately 300 cubic yards of excavated soil were reused on Site as backfill in the diesel fuel UST excavation following TPH results of the untreated stockpile below 500 mg/kg. The depth at which these soils were backfilled is unknown (could be in the 0 to 2 foot interval). Also (from Item 1 – Groundwater Rationale), the 855 cubic yards of contaminated soil generated during the 1995 UST closure activities which were biotreated on Site in 1996, were shown to

have post-treatment TPH results less than 500 mg/kg, at which time the soils were "redistributed" on Site. The "redistribution" area and depths are unknown (could have been spread on the surface). Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they meet current PADEP Act 2 MSCs for soils.

Possible current receptors to on Site surface soils (0 to 2 feet bgs) include Site workers, trespassers, and visitors. No exposure pathway controls have been instituted to limit contact with on Site soils and it is unknown whether such controls are warranted because the possible areas of soils contamination have not been adequately characterized.

4. Sediment:

Sediment samples were not collected as part of the Site investigation performed by NUS Corporation in 1986. This investigation was a non-sampling site reconnaissance. URS did not locate any sediment sampling information in either USEPA or PADEP files; therefore the condition of sediments in the unnamed creek located at the southern edge of the Venezia property is unknown. URS has no reason to suspect this media has/had been affected by known releases or operations conducted at the Site.

5. Surface Water:

The nearest surface water body is northeast of the Venezia facility, located adjacent to the quarry operations. In addition, two small lakes/large ponds were identified southeast of the Site. These lakes/ponds appear to be fed by a stream south of the facility.

A drainage gully and unnamed creek were identified by NUS in 1986 along the southern property boundary. The drainage gully was located in the southeast corner of the property and ran from the parking area to the unnamed ditch (**Figure 4** of the EI Report). No signs of stained soil, oily sheens, or stressed vegetation were observed on the property or in the vicinity of the creek at the time of NUS' 1986 Site visit. The 1992 photorevised USGS topographic map indicates that this creek is intermittent in its flow. The April 6, 2001, FEMA floodplain map identifies this waterway as Tributary #3 to Shoeneck Creek (**Figure 10** of the EI Report). This creek is also identified by PADEP online records as Jacoby-Bushkill Creek (**Figure 9** of the EI Report). The banks of the tributary or creek behind the Venezia property are within the 100 year flood plain. PADEP identifies this creek as a non-attaining segment of the Integrated List according to the standards set by the Pennsylvania Clean Water Act. These standards are based upon aquatic life, fish consumption, recreational use and potable water supply criteria. URS did not observe the gully or the creek at the time of the June 2007 Site visit.

Venezia holds no NPDES permits and thus there is no known direct discharge to the surface water. Wastewater generated on Site is collected in a holding tank at the rear of each of the buildings, is pumped periodically, and is transported to a treatment facility. On Site storm water is allowed to drain via infiltration and runoff. URS did not observe a storm water drainage collection system during the June 2007 Site visit .

The potential for indirect discharge of Site contaminants to surface water is possible via the groundwater flow pathway. The known and possible sources of contamination to on Site groundwater were outlined above in Item 1 (Groundwater Rationale). As the groundwater flow gradient for the Site has not been fully established (limited data from the monitoring wells in the northeast corner of the Site indicate flow to the north toward the Conoy quarry), and there is currently insufficient information relative to groundwater quality from possible known on Site sources, it is not possible at this time to determine if impacted groundwater may be discharging to either the surface water bodies located northeast or south/southeast of the Site. Therefore, it is currently unknown whether a complete exposure pathway from surface water to off Site human and ecological receptors is present, or, if it is, whether the diffuse groundwater discharges would result in unacceptable exposure to off Site human or ecological receptors. If additional Site groundwater data is collected, a groundwater discharge-to-surface water pathway evaluation per the modeling methodology prescribed in Act 2 (using SWLOAD5B or PENTOXSD) should be performed..

6. Subsurface Soil (>2 feet): Data discussed in this section are presented on Table 2 of the EI Report.

The former lagoons were located within the center of the property. Review of the NUS report (August 22, 1986) indicates that the lagoons were not properly closed (i.e: there was no sludge removed and the lagoon walls and floor were not

sampled). The former lagoons were backfilled with crushed stone in November 1973. The impact these structures may have (past or present) on Site environmental media, including soils, is unknown.

As discussed in Item 2 (Indoor Air Rationale), seven former USTs were removed from the Site in 1995. The UST locations are presented in **Figures 5, 6, and 7** of the EI Report. Key findings of the UST removal include the following (see **Table 2** of the EI Report for excavation sample results):

- No evidence of impact at heating oil UST 007;
- Limited impact in the fill port area of heating oil UST 006, which was subsequently overexcavated and re-sampled to demonstrate acceptable levels of TPH (below 500 mg/kg);
- Impact noted in the fill port area of the former waste oil USTs (Tanks 004 and 005) and further impact at the initial base of the UST 004 excavation, which was subsequently overexcavated and re-sampled to demonstrate acceptable levels of TPH (below 500 mg/kg);
- Extensive impact in the former diesel fuel UST area (Tanks 001, 002, and 003), which required overexcavation (effectiveness of which was not verified by additional soils sampling) and subsequent groundwater characterization, with the last known sampling event occurring in December 2000.

All of the above tank excavation activities relied on, at the most, excavation samples for TPH and lead. All detections of lead in the post-excavation samples meet the current PADEP Residential Direct Contact and Soil-to-Groundwater Pathway MSCs. There are no current PADEP-regulatory standards for TPH relative to tank closures, therefore it is unknown what the remaining soils quality in the tank excavation areas is relative to PADEP soil MSCs for petroleum-related organics.

As discussed previously (Item 2 – Indoor Air Rationale), approximately 300 cubic yards of UST-excavated soil were reused on Site as backfill in the diesel fuel UST excavation following TPH results of the untreated stockpile below 500 mg/kg. The depth at which these soils were backfilled is unknown (could be in the > 2 foot interval). Also (from Item 1 – Groundwater Rationale), the 855 cubic yards of contaminated soil generated during the 1995 UST closure activities which were biotreated on Site in 1996, were shown to have post-treatment TPH results less than 500 mg/kg, at which time the soils were "redistributed" on Site. The "redistribution" area and depths are unknown. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they meet current PADEP Act 2 MSCs for soils.

Possible receptors to on Site subsurface soils (2 to 15 feet bgs) would include utility workers or future construction workers. The soils in the former UST areas and former lagoon areas could possibly be intercepted by these receptor groups. Because the chemical quality of these soils is unknown, it cannot be determined whether a current or future complete exposure pathway is present.

7. Outdoor Air:

The Venezia facility has been a trucking Terminal and truck maintenance location since its inception in 1960. No stack construction or air emissions have ever been documented for this property. Therefore, there is no exposure pathway or potential for release to outdoor air from this facility.

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated Media"	Residents	Workers	Daycare	Construction	Trespassers	Recreation	Food[3]
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)							
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strikeout specific Media including Human Receptors -- spaces for Media, which are not "contaminated" as identified in #2 above.
2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations, some potential "Contaminated" Media – Human Receptor combinations (Pathways) do not have check spaces ("_____"). While these combinations may not be probable in most situations, they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media –receptor combination) – skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet) to analyze major pathways.

_____ If yes (pathways are complete for any "Contaminated" Media – Human Receptor combination) – continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media – Human Receptor combination) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"** (i.e., potentially[4] " unacceptable" levels) because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures (can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) – skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) – continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

[4] If there is any question on whether the identified exposures are "significant' (i.e., potentially "unacceptable") consult a Human Health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) – continue and enter a "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable") – continue and enter a "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) – continue and enter "IN" status code.

Rationale and Reference(s):

No rationale warranted.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_____ YE – Yes, "Current Human Exposures Under Control" has been verified.

_____ NO – "Current Human Exposures" are NOT "Under Control."

X IN – More information is needed to make a determination.

Completed by: (signature) _____ Date _____

(print) _____

(title) _____

Supervisor: (signature) _____ Date _____

(print) _____

(title) _____

(EPA Region or State) _____

Locations where References may be found:

A list of all reference documents is appended to the EI Report. Copies of these reference documents can be found at USEPA's Region III office in Philadelphia or PADEP's Northeast Regional office in Wilkes Barre, PA.

Contact telephone and e-mail numbers:

(name) _____

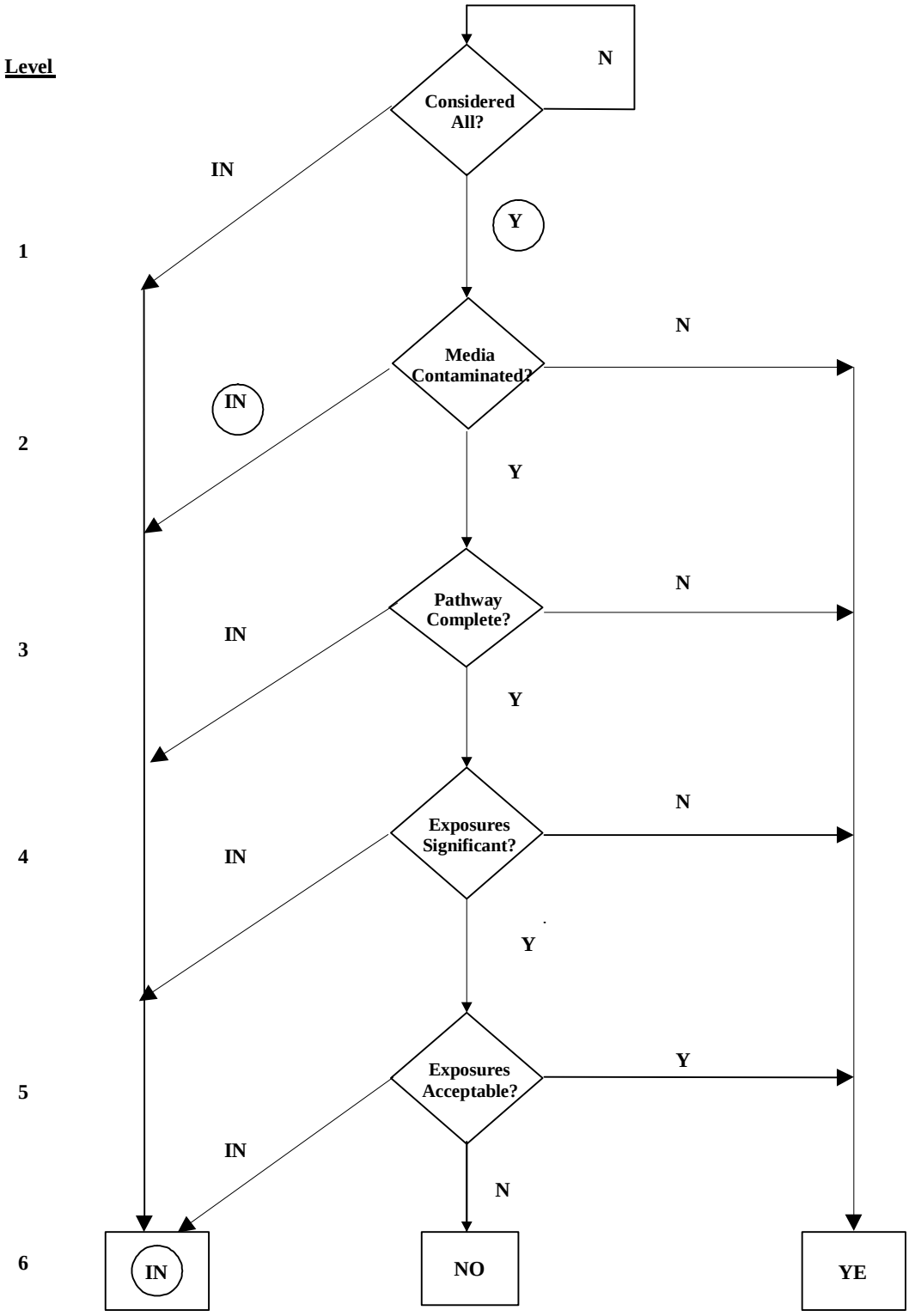
(phone #) _____

(e-mail) _____

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Facility Name: Venezia
EPA ID #: PAD099427908
Location: 3987 Easton-Nazareth Road (Route 248), Nazareth, PA 18064

CURRENT HUMAN EXPOSURES UNDER CONTROL (CA 725)



EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Primary Screening – Question #1

Q1: Are chemicals of sufficient volatility and toxicity (Table 1) known or reasonably suspected to be present in subsurface soils, soil gas, or ground water; the presence of these chemicals having resulted from releases subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), or Areas of Concern (AOC))?

_____ If YES - check here, check the relevant chemicals on Table 1, and continue with Question 2 below;

_____ If NO - check here, provide rationale and references below, and skip to the Pathway-Specific EI Summary Page and document that the subsurface vapor to indoor air pathway is incomplete; or

X If sufficient data are not available, skip to the Pathway-Specific EI Summary Page and enter "IN" (more information needed) status code.

Criteria:
Table 1 provides a list of chemicals and indicates whether they are sufficiently volatile and toxic to pose an incremental lifetime cancer risk greater than 10^{-5} or a hazard index (HI) greater than 1, assuming continuous exposure to the maximum possible vapor concentration. This is an extremely conservative criterion, corresponding to an infinite supply of the pure chemical (e.g., NAPL pool), and no indoor air dilution, which is highly unlikely to occur. The exposure assumptions and calculations are documented in Appendix B.

Note: Table 1 may not include all possible chemicals of concern; it can be revised to include other chemicals according to the methods described in Appendix B, if the necessary chemical property and toxicity data is available.

Rationale and References:

Former Wastewater Lagoon Area: Two unlined lagoons were used at the Site from December 1965 through November 1973, to collect wastewater generated from the internal cleaning of tank trucks. These lagoons were constructed in the center of the property, approximately 400 feet behind the Terminal building. The lagoons measured 24 by 32 feet and 28 by 34 feet and were 2 and 3 feet deep, respectively. The two lagoons were interconnected by a 4 inch diameter pipe. The wastewater discharged to the lagoons consisted of rinse water from cleaning tank trailers and residual amounts of product which remained on the tank trailer walls. The products typically cleaned were petroleum oils, acids, synthetic latexes, and acrylates. The estimated volume of wastewater received by the lagoons was 200 to 300 gallons per day or three to five trucks per day. The lagoon system was eliminated in November 1973 and was replaced with a poured-in-place concrete holding tank. Following complete construction of the holding tank, the lagoons were decommissioned by backfilling with roadbed-grade aggregate. Roadbed-grade aggregate covers the entire roadway and parking area on the Site. Visible evidence of these lagoons was not observed during the NUS Site reconnaissance on July 24, 1986, or by URS during the Site visit on June 12, 2007. No metals or organics sampling of the wastewater was conducted and no documentation indicating sludge or sediment samples were collected from the lagoons was located by URS in the USEPA or PADEP files.

There has been no investigation to date of Site groundwater which has included the breadth of consituents that would be necessary to evaluate possible lagoon-related impacts. Groundwater present within 100 feet (the radius specified by USEPA and PADEP for consideration of the vapor intrusion pathway) of current buildings may be impacted by the former lagoons, thus necessitating subsequent evaluation of the potential impacts to indoor air via vapor intrusion. Also, future construction in the former lagoon area, though not currently planned, could place a structure within 100 feet of potentially-contaminated former lagoon soils, another possible vapor source.

Former UST Areas: Seven USTs were removed from the Site in September and October 1995. The tanks consisted of two 6,000 gallon heating oil tanks, two used waste oil tanks (550 gallon and 1000 gallons each), and three 4,000 gallon diesel fuel tanks. Soil samples were collected as part of the tank removal process and were analyzed for total petroleum hydrocarbons (TPH) and lead. Elevated TPH values resulted in overexcavation at some of the tank locations. Approximately 300 cubic yards of excavated soil were reused on Site as backfill in the diesel fuel UST excavation following "acceptable" TPH results of the untreated stockpile (TPH less than 500 mg/kg for a release greater than one year old, based on the limit prescribed in PADEP's 1993 Tank Closure Requirements Document). The remaining 855 cubic yards was biotreated on Site in 1996 and were shown to have post-treatment TPH results less than 500 mg/kg, at which time the soils were "redistributed" on Site

Site assessment information submitted in October 1995, with the PADEP UST Closure Report Forms indicated that obvious contamination was observed during soil excavation for the diesel fuel tanks and that contamination was not localized. A groundwater investigation was performed by R.E. Wright Environmental, Inc. for the diesel fuel UST area during which four 90 to 100 feet deep groundwater monitoring wells were installed. Beginning in 1996, groundwater samples were collected up to seven times from these wells including the four consecutive quarters in 2000, and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, cumene, phenanthrene, and fluorene. Detected concentrations of these constituents were below the PADEP Residential and Non-Residential Used Aquifer Medium Specific Concentrations (MSCs) for all constituents except benzene (MW-1, 12 ug/l on May 23, 1996 and MW-4, 23 ug/l on June 16, 1997) and naphthalene (MW-4, 125 ug/l on March 1, 2000). Based on recent correspondence between URS and PADEP, Act 2/Act 32 closure of the former diesel fuel UST area has not been granted because it is PADEP's opinion that additional data is required for proper characterization of the plume.

To evaluate potential risks to indoor air quality at the Site, URS compared the groundwater sample results to current USEPA-PA default residential volatilization to indoor air screening values as published in PADEP's Guidance "Section IV.A.4 - Vapor Intrusion into Buildings from Groundwater and Soil Under the Act 2 Statewide Health Standard", effective January 24, 2004. The PADEP default screening values were derived using the USEPA Johnson & Ettinger model (J&E) with the default assumptions that no separate phase liquid is present, a minimum of five feet of separation distance exists between contamination sources and occupiable structures, soils are not sand or gravel, and no preferential flow pathways are present for the vapor to travel. Comparison of the available diesel fuel area groundwater data indicates no exceedances of the default indoor air criteria referenced above. However, there is insufficient information to adequately evaluate probable impacts to indoor air from the former USTs for the following reasons:

- While MW-1 and MW-2 are within the 100 foot radius of the Terminal building (the radius specified by USEPA and PADEP for consideration of the vapor intrusion pathway), limited analytical data exists for these wells. For MW-1 only one sample out of four consecutive quarters was collected due to lack of water in the well and only three total samples out of seven events were able to be collected due to lack of water in the well. MW-2 samples were collected four out of seven times due to lack of water in the well.

- There is no soils data from the tank grave areas for individual organic constituents, which is of particular concern in the former diesel fuel UST area (USTs 001 through 003), which is located within 100 feet of existing occupiable buildings. Additionally the TPH concentrations in the former diesel fuel UST area were quite high (up to 6,700 mg/kg). Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a vapor source to current or future structures at the Site.

- Individual organic constituent concentrations for the 1,155 cubic yards of soils excavated from the UST areas in September and October 1995 are unknown. These soils have been re-used on Site (as backfill in the former diesel fuel UST area and "redistributed" on Site) following analysis

results yielding TPH concentrations less than 500 mg/kg. The "redistribution" area is unknown. Because the concentrations of individual organic constituents in these soils were not quantified, it is unknown whether they may be a vapor source to current or future structures at the Site.

Summary: There are currently no controls on the indoor air pathway at the Site. It is unknown whether such controls are needed to mitigate the soil vapor/groundwater-to-indoor air pathway because the data currently available for the Site is insufficient to determine if the pathway is complete.

There are known areas of UST-related contamination located within 100 feet of currently present occupiable structures, however available data to characterize the contamination is limited [i.e. minimal rounds of groundwater data in MW-1 and MW-2 and lack of analytical data for individual organic constituents in the tank grave soils and redistributed excavated (treated and untreated) soils]. Additionally, there is no soils or groundwater data for the former lagoon area. Groundwater data that is available from MW-1 and MW-2 for diesel fuel contaminants indicates that the pathway is incomplete.

Further investigation of Site soils and groundwater is warranted to determine if the vapor intrusion-to-indoor air pathway is complete and, if so, to dictate possible implementation of controls such as deed restrictions on future construction or use of vapor barriers in the lagoon area or engineering controls for existing buildings.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY

Primary Screening – Question #2

Q2: Are inhabited buildings located near subsurface contaminants having sufficient volatility and toxicity?

_____ If YES - check here, identify buildings below, and continue with Question 3 below.

_____ If NO – check here and skip to the Pathway-Specific EI Summary Page and document that the subsurface vapor to indoor air pathway is incomplete, or

_____ If sufficient data are not available - check here and skip to Pathway-Specific EI Summary Page and enter "IN" (more information needed) status code.

Criteria:

The goal of this question is to identify buildings that could potentially have a complete pathway, i.e., indoor air concentrations above levels that would pose a lifetime incremental cancer risk of 10^{-5}, or a hazard index of >1. For the purposes of this question:

- **"inhabited buildings"** are structures with enclosed air space that are designed for human occupancy.
- **"subsurface contaminants having sufficient volatility and toxicity"** are defined by Table 1 and were discussed above in Question 1.
- An inhabited building is considered **"near"** subsurface contaminants if it is located within 100 ft laterally of known or interpolated soil gas or groundwater concentrations in excess of the criteria in Table 2.

A distance criterion is necessary to focus the assessment on buildings most likely to have a complete pathway. Vapor concentrations generally decrease with increasing distance away from a subsurface vapor source, and at some distance, the concentrations become negligible. The distance at which concentrations are negligible is a function of the mobility, toxicity and persistence of the chemical, as well as the geometry of the source, subsurface materials, and characteristics of the building of concern. Definitive studies on this topic have yet to be conducted, but 100 feet is a reasonable criterion when considering vapor migration fundamentals, typical sampling density, and uncertainty in defining the actual contaminant spatial distribution.

Identify Inhabited Buildings Within Distances of Possible Concern:

Not applicable.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Primary Screening Stage-– Question #3

Q3. Is **immediate action warranted** to mitigate current risks to residents of those buildings identified in Question 2 to be located within the area of concern?

_____ If YES – check here and proceed with immediate actions to verify or eliminate imminent risks, which may include indoor air quality monitoring, engineered containment or ventilation systems, or relocation of receptors[1]. The immediate action(s) should be appropriate for the situation.

_____ If NO – check here and then continue with Question 4 below.

Criteria:
Here we focus on those buildings identified in Question 2 to be located within the areas of concern. The following qualitative criteria are considered sufficient to justify immediate actions:

Odors reported by occupants, particularly if described as “chemical”, or “solvent”, or “gasoline”. The presence of odors does not necessarily correspond to adverse health and/or safety impacts and the odors could be the result of indoor vapor sources; however, it is prudent to investigate any reports of odors as the odor threshold for some chemicals exceeds their respective acceptable target breathing zone concentrations.

Physiological effects reported by occupants (dizziness, nausea, vomiting, confusion, etc.).

Wet basements, in areas where chemicals of sufficient volatility and toxicity (see Table 1) are known to be present in groundwater and the water table is shallow enough that the basements are prone to groundwater intrusion or flooding, especially if there is evidence of light, non-aqueous phase liquids (LNAPLs) floating on the water table directly below the building, and/or any direct evidence of contamination (liquid chemical or dissolved in water) inside the building.

Short-term safety concerns are known, or are reasonably suspected to exist - for example: a) explosive or acutely toxic concentrations of vapors have been measured in the building or connected utility conduits; b) explosive or acutely toxic levels of vapors are likely to be present in utility conduits, sumps, or other subsurface drains directly connected to the building. Lower explosive limits are typically in the range of 1 to 5% by volume (10,000,000 ppbv to 50,000,000 ppbv).

There may be circumstances in which the Responsible Party elects to initiate indoor air quality monitoring and/or pro-actively eliminate exposures through avoidance or mechanical systems, rather than pursue continued assessment of the pathway. In some cases this may be a cost-effective option as it leads directly to an incomplete subsurface vapor to indoor air pathway. This option is available at any time in the assessment. Furthermore, some buildings are positively pressurized as an inherent design of the heating, ventilating and air conditioning system, and it may be possible to show that the pathway is incomplete by demonstrating a significant pressure differential from the building to the subsurface. Proactive indoor air quality monitoring may also be initiated at any time, although it is not necessary if the pathway can be confirmed to be incomplete using other data.

Rationale and Reference(s):

No rationale warranted.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Secondary Screening – Question #4

Q4: Do measured or reasonably estimated indoor air, soil gas, or ground water concentrations[2] exceed the target media-specific concentrations given in Table 2?

_____ If NO, and there is no reason to believe that the conservative attenuation factor of 0.01 is inappropriate – document representative media concentrations on Table 2 and check here. Go to the Pathway-Specific EI Summary Page and document that the subsurface vapor to indoor air pathway is incomplete. *See justification presented in Q3 based on PADEP VIP Guidance.

_____ If YES – check here. If indoor air concentrations are known and these are greater than the target indoor air concentrations, then the pathway is complete and engineering controls or avoidance measures need to be implemented. If only soil gas or groundwater data are available, and these exceed the target criteria, document representative media concentrations on Table 2 and then proceed to Question 5.

_____ If sufficient data are not available - check here and skip to Pathway-Specific EI Summary Page and enter "IN" (more information needed) status code.

Criteria:
Question 4 is intended to allow a rapid screening of available site data, which may include soil gas, groundwater, or indoor air concentrations. Concentrations in the three media are assumed to be correlated, so that data from any of the three media can be used. If data are available for more than one media, all of the data should be considered in answering Question 4. As discussed in Appendix A, confidence in the assessment increases with multiple lines of evidence, so additional data may be collected for consideration in Question 4, at the discretion of either the responsible party or the lead regulatory authority, to the extent that this may be necessary and appropriate.

Note that it is important to segregate the buildings of interest into two categories: a) buildings lying above areas where contaminated groundwater is the only source of contaminant vapors, and b) buildings lying above areas where contaminated vadose (unsaturated) zone vapor sources are present. While indoor air quality data can be used to judge the pathway completeness in either case, the appropriate use of groundwater and soil gas data is different for these two cases. In case (a) either the soil gas or groundwater criteria in Table 2 can be used at this step, while in case (b) only soil gas criteria and soil gas samples collected above the vapor source zone can be used. This is because the groundwater criteria have been derived assuming no other vapor sources between the water table and the building foundation. This also applies for Question 5.

The term "measured or reasonably estimated" is used above (and throughout this document) as it is recognized that measurements at all buildings of concern may not be practical or necessary. For example, groundwater concentrations beneath buildings are commonly estimated from concentrations collected in wells distributed about a larger area of interest. Likewise, one might reasonably estimate upper bound indoor air concentrations for a group of buildings based on the measurements taken from those buildings expected to have the highest concentrations.

In the case of soil gas concentrations, measured or reasonably estimated soil gas concentrations at any depth in the subsurface may be used in Question 4, provided that this depth falls below the foundation depth. As there are concerns about the integrity of shallow soil gas samples, it is recommended that samples collected at depths <5 ft below ground surface (BGS) not be used for this analysis, unless they are collected immediately below the building foundation several feet in from the edge. Samples from fixed probes are also preferable, but not required. With respect to the spatial distribution of sampling points, close proximity to the building(s) of concern is preferred; however, it may be possible to reasonably estimate concentrations based on data from soil gas samples collected about a larger area. Users should

also consider that, in general, samples collected at depth closer to the vapor source are much less likely to be dependent on the surface cover (i.e. pavement, lawn, foundation) than shallow soil gas samples. In the case of groundwater concentrations, these should be measured or reasonably estimated using samples collected from wells screened at, or across the top of the water table. This is necessary to be consistent with the derivation of the target groundwater criteria in Table 2. Samples from groundwater monitoring wells may be a blend of groundwater from different levels across the screened interval. Confidence in the results can be increased through use of a more narrowly screened interval across the water table, or a variety of other depth-discrete sampling protocols. These issues, and others to be considered during data collection, are discussed in Appendix A.

Question 4 calls for comparison with the target criteria given in Table 2; however, this guidance is not intended to supercede existing state-specific guidance or regulations. Thus, the lead regulatory agency will determine the appropriate criteria to be used here and in Questions 5 and 6. If target criteria are not available, then the tables provided with this guidance should be used. A regulatory agency may have already developed acceptable indoor air concentrations, but they might not have derived vapor intrusion pathway-specific target media concentrations. In this case, the methods discussed in Appendix B can still be used to derive target soil gas and dissolved groundwater concentrations consistent with those existing target indoor air concentrations. Where pathway-specific media concentrations already exist, the values provided in this guidance should be considered national benchmarks, and the governing regulatory authority should compare the methods and assumptions used to derive their criteria with the methods used in this guidance. In any case, users of this guidance should review the methods used to derive the tables presented in this guidance, and consider whether or not the assumptions and methods are appropriate for their application. These assumptions are discussed briefly below, and in more detail in Appendix B. The target media-specific concentrations given in Table 2 correspond to indoor air concentrations calculated to cause an incremental lifetime cancer risk of 10^{-5} or a Hazard Index of 1.0 (whichever is more restrictive). In the case of the soil gas criteria, a conservative soil gas to indoor air attenuation factor of 0.01 is used. For the groundwater criteria, there is an additional conservative assumption that the partitioning of chemicals between groundwater and soil vapor is assumed to obey Henry's Law. Table 2 may not include all possible chemicals of concern; it can be revised to include other chemicals of concern according to the methods described in Appendix B, if chemical property and toxicity data is available.

The soil gas to indoor air attenuation factor represents the ratio of the indoor air concentration to the soil gas concentration at some depth. The 0.01 value is considered to be a reasonable upper-bound value for the case where the soil gas concentration immediately beneath a foundation is used (e.g., the indoor air concentration would not be expected to exceed 1/100 of the concentration immediately below the foundation). This value is based on available data from sites where paired indoor air and soil gas samples immediately below a foundation were available, and also theoretical considerations. It is a conservative enough criterion that it should be protective even in settings where the building has significant openings to the subsurface. In addition, since it has been argued that the 0.01 value is conservative for deriving near foundation soil gas criteria, the soil gas criteria derived using this value would be even more conservative if applied to soil gas concentrations measured or reasonably estimated at any other deeper depth. For reference, attenuation factors as low as 0.00001 have been determined from data at some sites. There may be some settings where the 0.01 attenuation factor is not a conservative upper-bound value; however, most of these settings would presumably be identified and addressed in Question #3.

The authors of this guidance felt that the uncertainties associated with soil partitioning calculations as well as the uncertainties associated with soil sampling and soil chemical analyses (see EPA/600/SR-93/140) were so great that use of soil concentrations for assessment of this pathway is not technically defensible. Thus, soil concentration criteria were not derived and the use of soil criteria is not encouraged. However, as discussed above, this guidance is not intended to supercede existing State guidance, and users should follow the appropriate guidance as determined by the lead regulatory authority. Furthermore, proponents may elect to defend the use of soil concentration data in the Site-Specific Pathway Assessment, Question 6.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY

The soil gas and groundwater target concentrations were derived from the target indoor air criteria, without consideration of ambient outdoor air quality or other chemical sources internal to the building. The target concentrations should therefore be interpreted as target incremental concentrations above background levels. To be consistent with that definition, background concentrations should be subtracted from measured or reasonably estimated indoor air concentrations before comparison against the Table 2 (or other appropriate) criteria.

Values appearing in Table 2 were derived for an incremental lifetime cancer risk (R) of 1×10^{-5} and hazard index (HI) of 1. The risk-manager or decision-maker should consider a number of variables when comparing site data to the Table 2 criteria, including: the number and locations of samples, the spatial and temporal variability of concentrations, the frequencies of accedences of Table 2 criteria, the magnitude of accedences of Table 2 criteria, and the degree of conservatism built into Table 2 values. The Table 2 criteria are not intended for use as "bright-line criteria", below which any measured or reasonably estimated concentrations are acceptable and above which any concentrations are unacceptable. Instead, professional judgment should be used when applying the criteria. For example, if eight out of ten samples satisfy Table 2 criteria and the other two exceed the criteria, but only by a factor of two or three, the risk-manager might decide that the pathway is incomplete, even though two of the samples exceed the criteria. This is because the risk estimate is still in the same order-of-magnitude as the target risk level and there is some conservatism built into the Table 2 values.

Rationale and Reference(s):

No rationale warranted.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Secondary Screening – Question #5

Q5: Using the appropriate scenario-specific attenuation factor (from Figure 1), do measured or reasonably estimated soil gas or ground water concentrations exceed the target media-specific concentrations given in Table 3?

_____ If NO, and there is no reason to believe that the scenario-specific attenuation factor is inappropriate, check here and document the Rationale and References for the scenario-specific attenuation coefficient below. Go to the Pathway-Specific EI Summary Page and document that the subsurface vapor to indoor air pathway is incomplete.

_____ If YES – check here, and if representative measured or reasonably estimated soil gas and/or groundwater concentrations are considerably (i.e. greater than 100 times) higher than the values in Table 3 then interim exposure controls and/or measurement of indoor air quality monitoring should be conducted as soon as practicable; and when representative media concentrations are less than 100 times the appropriate Table 3 values proceed to further analysis and modeling in Question 6.

_____ If sufficient data are not available - check here and skip to Pathway-Specific EI Summary Page and enter "IN" (more information needed) status code.

Criteria:
Soil gas or groundwater to indoor air attenuation factors are expected to depend on building characteristics, chemical type, soil type, and depth of the source (which is defined as either a measured soil gas concentration at the specified sample collection depth below the building, or the ground water concentration at the depth of the water table). The 0.01 attenuation factor value used in Question 4 is representative of expected upper bound values for vapors located immediately below the building, and therefore does not depend on soil type or depth. Question 5 considers the site-specific soil type and depth of source to allow for a more representative vapor attenuation factor, and consequently the target media concentrations. The target indoor air concentrations remain the same (unchanged from Table 2), but target soil gas and groundwater concentrations will vary with changes in the vapor attenuation factor.

Attenuation factors have been calculated for some combinations of source depth, soil type, and building characteristics using the Johnson and Ettinger (1991) model. Reasonable building characteristics were selected and held constant in these calculations and the chemicals were assumed not to degrade. To capture the effect of changes in soil properties, the U.S. Soil Conservation Service (SCS) soil texture classifications were considered, and a subset of these were selected. This subset was chosen so that their relevant properties (porosity and moisture content) would collectively span the range of conditions most commonly encountered in the field. Then, plots of attenuation factor vs. depth were calculated and these results are presented below in Graphs 1a (for use of soil gas data) and 1b (for use of groundwater data). The two graphs are different because the first does not have to account for transport across the capillary fringe. Details of these calculations are included in Appendix B.

The depth used should be: a) the vertical separation between the soil gas sampling point and the building foundation for use of Graph 1a, or b) the vertical separation between groundwater and the building foundation for use of Graph 1b. Samples collected near to, but at depths shallower than the building foundation should not be used. Table 4 should be used to help select the most appropriate soil texture classification as discussed below.

The site characterization should include collection of soil samples at various depths between the building foundation elevation and contamination source (i.e., vertical soil gas and/or groundwater quality profiling) and description of soil lithology. The preferred method for determining the SCS soil class is to use lithological information combined with the results of grain size distribution tests on selected soil samples. Procedures for conducting grain size distribution tests are provided in American Society for Testing and Materials (ASTM) Standard Test Method for Particle Size Analysis of Soils (D422-63) and U.S. Natural

Resources Conservation (NRCC) Soil Survey Laboratory Methods Manual, Soil Survey Laboratory Investigations Report No. 42.

The U.S. SCS soil texture classes are based on the proportionate distribution of sand, silt and clay sized particles in soil. It does not include any organic matter. The grain size boundaries are as follows:

Sand: 0.05 mm to 2 mm
Silt: 0.002 mm to 0.05 mm
Clay: <0.002 mm

The soil textural classes are displayed in the SCS soil textural triangle. The soil texture class is determined by plotting the grain size distribution results on the soil texture triangle. If a soil texture class is not intersected based on the five classes included in the guidance, the nearest soil class is chosen. The selection of the soil texture class should be biased towards the coarsest soil type of significance, as determined by the site characterization program.

There are sites where different soil classifications systems have been used, and where information on soil lithology and grain size distribution is limited. Most engineering soil classification systems are either based on grain size, or a combination of grain size and engineering properties (e.g., Unified Soil Classification System (USCS), ASTM D2488-84, NAVFAC DM7.2 (1982)). For several soil classification systems, soil is divided into a coarse-grained fraction consisting of sand and gravel (or larger) particles (greater than 0.075 mm size) and fine-grained fraction consisting of silt and clay (less than 0.075 mm size). Soils are characterized as fine-grained if more than 50 percent is less than 0.075 mm in size. Various descriptors of particle size proportions such as trace, few, little, some, or use of the grain size class as an adjective or noun are often used to describe different soil types. In some cases engineering properties are also used to determine the appropriate soil type description. Unfortunately, there are widespread differences in both the soil classification systems used to describe soils and differences in the quality of lithological descriptions incorporated in boring logs.

To assist users of guidance in cases where lithological and grain size information is limited, Table 4 below provides guidance that can be used to select, in appropriate terms, the appropriate soil texture class. Table 4. Guidance for selection of soil type curves in Graphs 1a and 1b.

If your boring log indicates that the following materials are the predominant soil types …	Then you should use the following texture classification when obtaining the attenuation factor
Sand or Gravel or Sand and Gravel, with less than about 12 % fines, where “fines” are smaller than 0.075 mm in size.	Sand
Sand or Silty Sand, with about 12 % to 25 % fines	Loamy Sand
Silty Sand, with about 20 % to 50 % fines	Sandy Loam
Silt and Sand or Silty Sand or Clayey, Silty Sand or Clayey, Sandy Silt, with about 45 to 75 % fines Sandy Silt or	Loam
Sandy Silt or Silt, with about 50 to 85 % fines	Silt Loam

We note that there is no soil texture class represented as consisting primarily of clay. Exclusion of clay was deliberate since homogenous, unfractured clay deposits are rare. Users of this guidance have the option to refine selection of soil properties as part of the Site Specific Pathway Assessment.

The user must defend their scenario choice with site-specific data. Given the approximate nature of this approach, users should round their attenuation factor to the nearest half order-of-magnitude (0.01, 0.003, 0.001, 0.0003, or 0.0001), selecting the higher number if the best estimate is between two increments. Then, the columns in Table 3 can be used to determine the appropriate target media concentrations. Values in Table 3 were derived as discussed in Appendix B.

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Interim exposure controls and/or measurement of indoor air quality should be conducted as soon as practicable if measured or reasonably estimated soil gas and/or groundwater concentrations are considerably (i.e. greater than 100 times) higher than the values in Table 3 since the Site-Specific Assessment step is very unlikely to result in an attenuation factor that is 100 times smaller than the attenuation factor determined at this stage. This is especially true for any chemical (degradable or not) when shallow (e.g., <2 ft beneath the building foundation) soil gas concentrations are being used for assessment.

If the media concentrations being used are from a significant depth and the chemicals of concern are known to degrade aerobically, it is possible for the actual attenuation factor to be considerably less than the value determined in this step. However, this issue should be addressed through vertical soil gas profile sampling involving shallower samples in this question (or other direct empirical evidence and supporting data to show the profile of oxygen, carbon dioxide, or other indicators of microbial activity are adequate to validate conceptual models based on analogous case studies in similar settings, in Question 6). Again, if shallow soil gas samples are being used, it is unlikely that degradation will contribute significantly to increased attenuation between the sampling point and the building. It should also be recognized that it may be less expensive (or more desirable for other reasons) to install and operate exposure controls than to conduct further assessment. This guidance neither requires nor precludes such an approach, and it is left to the discretion of the responsible party to decide if proactive exposure controls are cost-effective.

Rationale for Selecting Site-Specific Attenuation Factor and Reference(s):

No rationale warranted.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Site-Specific Assessment – Question 6

Q6: Do measured or reasonably estimated soil gas or ground water concentrations exceed media-specific criteria developed specifically for this site?

_____ If YES - check here and implement exposure controls (avoidance or mechanical systems with appropriate monitoring to demonstrate their effectiveness) to prevent possible human exposures to subsurface vapors migrating into indoor air. Prepare a performance monitoring plan and proceed to Question 7;
_____ If NO – check here and provide documentation of Site-Specific Assessment for regulatory review.
_____ If sufficient data are not available - check here and skip to Pathway-Specific EI Summary Page and enter "IN" (more information needed) status code.

Criteria:
The Site-Specific Pathway Assessment is intended to be used where site-specific conditions warrant further consideration prior to concluding either that the pathway is incomplete, or that some form of exposure control is required. The assessment could be as simple as using the same equations employed to develop the Secondary Screening criteria but with revised inputs that are defended with site-specific data. It could also be as complex as a comprehensive mapping of subsurface vapor distributions and measurement of subsurface material properties affecting gas flow and transport, combined with the development of a site-specific vapor transport model. The data needs are greater here than in the Primary and Secondary Screening; however, the necessary data might already be available from previous site characterization work.
A conceptual model of the site and subsurface vapor transport and vapor intrusion mechanisms will be needed to defend the Site-Specific Pathway Assessment. Model inputs and assumptions that are different than the generic assumptions in Questions 4 and 5 criteria (and others to be added to the appendices) must be supported with site-specific data.
The site-specific conceptual model should be developed in the source-pathway-receptor framework, and it should identify how the site-specific conceptual model is similar to, and different from, the generic conceptual model used in developing Table 3. Key components of the conceptual model may need to be justified with site-specific data, including, but not limited to the source (chemical constituents, concentrations, mass, phase distribution, depth, and aerial extent), pathway (soil texture, moisture, and layering) and receptor (building design, construction, and ventilation). The indoor air concentrations may be simulated with a mathematical model, which the user must be prepared to document and defend as appropriate for the site-specific conceptual model. The user must also defend model inputs (different than those (to be added to) the appendices) by validated site-specific data. The discussion above in Appendix A concerning data sufficiency is also applicable here. Indoor air quality sampling and analysis is neither required, nor precluded; however, if indirect data (e.g. soil gas data) are to be used exclusive of indoor air quality data, the vapor attenuation factor must be assigned either using site-specific data (e.g. the building ventilation rate, pressure differentials, soil gas permeability), or using conservative assumptions.
If the pathway is not judged to be incomplete during the Primary, Secondary, or Site-Specific Screening, it is considered to be complete, unless some action is taken. Possible actions include:

- engineered containment systems (subslab de-pressurization, soil vacuum extraction, vapor barriers)
- ventilation systems (building pressurization, indoor air purifiers)
- avoidance (temporary or permanent receptor relocation) or
- removal actions to reduce the mass and concentrations of subsurface chemicals to acceptable levels (i.e., remediation efforts).

Rationale and Reference(s):

No rationale warranted.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Post-Assessment Monitoring – Question 7

Q7: Will temporal monitoring data or performance monitoring data (for a mechanical exposure control system) be collected to assess whether the pathway remains incomplete?

_____ If YES - check here and provide a brief summary of the monitoring requirements, or reference monitoring workplan.
_____ If NO – check here and provide justification.

Criteria:
Performance Monitoring is necessary to ensure that the pathway remains incomplete for sites relying on exposure control systems. **Pathway Monitoring** is recommended for sites where the measured or reasonably estimated media concentrations are at, or marginally less than the target media concentrations for that site, or when temporal trends cannot be reasonably predicted with existing data. This could involve repeated sampling of groundwater, soil gas, or indoor air on some appropriate frequency. The need for pathway monitoring is decided by the lead regulatory authority; however, one should consider the derivation of the target media concentrations and differences between those and measured or reasonably estimated values when determining monitoring requirements. Presumably, monitoring is less important in cases where measured or reasonably estimated media concentrations are an order of magnitude less than the more conservative media criteria (Table 2), and monitoring is more important when measured or reasonably estimated media concentrations are only marginally less than criteria selected at Question 5 (Table 3) or Question 6. As additional data becomes available, it should be compared with previous data as well as the target media-specific concentrations. If accedences occur, or are projected to occur, appropriate actions (usually engineering controls) should be taken, or continued. If monitoring demonstrates that the pathway is incomplete and will remain so under current site conditions, then other actions are not necessary.

Rationale and Reference(s):

No rationale warranted.

EVALUATING THE VAPOR INTRUSION TO INDOOR AIR PATHWAY
Pathway-Specific EI Summary Page

Facility Name: Venezia (Formerly Quality Carriers and Chemical Leaman Tank Lines, Inc.)

Facility Address: 3987 Easton-Nazareth Road, Nazareth, PA 18064

Facility EPA ID #: PAD099427908

Below, check the appropriate status codes for the Subsurface Vapor to Indoor Air Pathway evaluation on the EI determination and attach appropriate supporting documentation as well as a map of the facility.

Is there a Complete Pathway for subsurface vapor intrusion to indoor air?

	NO - the "Subsurface Vapor Intrusion to Indoor Air Pathway" has been verified to be incomplete, based on a review of the information contained in this EI Determination of the Venezia facility, EPA ID PAD099427908, located at 3987 Easton-Nazareth Road, Nazareth, PA 18064 under current and reasonably expected conditions, or based on performance monitoring evaluations for engineered exposure controls. This determination will be re-evaluated when the Agency/State becomes aware of any significant changes at the facility. [****Note:** this determination was made based on 1996 through 2000 groundwater sample data. No recent sampling has been conducted at the Site; however, based on past, current, and future uses of the existing buildings and based on a comparison of this data to current indoor air quality criteria, it is believed that a subsurface vapor intrusion to indoor air pathway is incomplete at this time.]
	YE – Yes, The "Subsurface Vapor to Indoor Air Pathway" is Complete.
X	IN - More information is needed to make a determination.

Locations where References may be found:

A list of all reference documents is appended to the EI Report. Copies of the reference documents can be found at USEPA's Region III office in Philadelphia or PADEP's Northeast Regional office in Wilkes-Barre, PA.

Contact telephone and e-mail numbers:

(name):

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This document is dedicated to the late Craig Mann, who was a member of the authoring committee, a prominent researcher in the field and programmer of the widely-used spreadsheet version of the Johnson and Ettinger (1991) model available at www.epa.gov/superfund/programs/risk/airmodel/johnson_ettinger.htm. He was a friend and inspiration to us all.

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.